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PREMIERE ISSUE

EPSON® WORLD

THE MAGAZINE OF PRACTICAL APPLICATIONS

USER GROUPS ACROSS THE U.S.A.

HARD DISK TIPS FOR THE UNINITIATED

GENEVA TAKES TELECOMMUNICATIONS NETWORKS BY STORM

QX-10 FROM THE BEGINNING TO VALDOCS 2.0

EPSON QX-16: MS-DOS AND CP/M UNDER THE SAME HOOD

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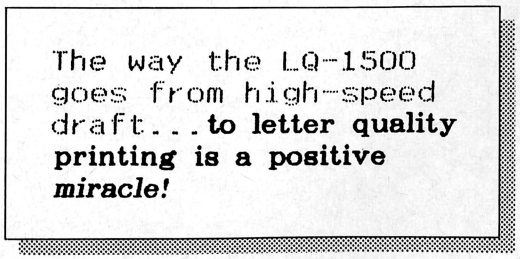

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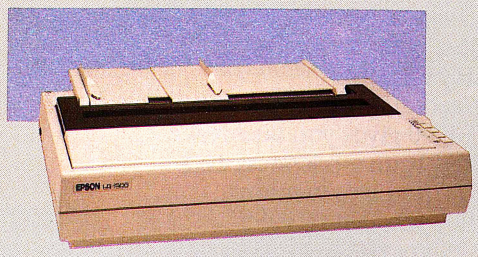

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CRESTLOOK

JOHN P. MELLO JR.

EPSON MAKES RIGHT MOVES FOR SURVIVAL

WE AT COMPUTER COMMUNICATIONS, publishers of *Epson World* share Chris Rutkowski's view: We in the vanguard of the Information Age are riding the curl of Alan Toffer's Third Wave on a silicon surfboard. But there are a lot of surfers out there, many of them wiping out daily. Why back Epson?

For one thing, we agree with consumer products division executive vice president and general manager, Jack Whalen: Epson is evolving into a computer power.

"The concept of evolution is based on a principle called 'survival of the fittest,' " he told a recent gathering of business journalists. "With the strong commitment of resources and guidance from our parent company in Japan, yet plenty of independence to serve our market, Epson America feels that it's people, products, and organization make it one of the fittest in this country. We definitely plan to survive."

While no company is going to say it doesn't think it will be a survivor of the ominous "shakeout," we believe Epson's commitment to the American computer market is more than just corporate lip service and breast beating.

SHINING EXAMPLE

A shining example of Epson's commitment can be found in its recent announcement that it has agreed to purchase 17 acres of land outside Portland, OR, to construct offices and a printer assembly plant. Ten million dollars will be invested in phase one of this project, and according to Epson, 200 new jobs will be created.

Epson Corporation Chairman I. Hattori added, in a statement, the company will also produce personal computers at the Oregon site in the future.

In addition, Epson, in collaboration with Suwa Seikosha Co. Ltd. of Japan, is considering establishing a semiconductor manufacturing operation and a research and development facility in basic technologies in the United States.

These hard commitments were coupled with a philosophical commitment by Hattori that we believe any company like Epson must have to survive. "Through Epson America, we're an American company," Hatori said, "and we want to be part of the community. This plant will provide jobs for Americans. We also want to have local control. An Oregon assembly plant will give Epson America the increase control and shorter lead times that come with local production."

EPSON WORLD'S ROLE

What do we see as *Epson World's* role in the evolutionary process referred to by Jack Whalen?

First, we believe many people aren't tapping the computing power they have. They need to know what other owners are doing with their equipment. Not how others are hacking around with their equipment, but how they're using it in a practical and work-a-day way.

Second, more and more people are shopping for a computer. Many of these people have only a vague notion of what they intend to do with their computer. These people, too, need to know what a computer can and cannot do for them.

With this in mind, we will be emphasizing applications and getting a job done in everything we publish in *Epson World* — from new products to our feature articles.

We think this is the wave of the future. We think this the best way to tell everbody, "Surf's Up."

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For QX-10 owners wishing to dig into the treasure trove of MS-DOS software, ***TITAN TECHNOLOGIES INC.*** of Ann Arbor, MI, is offering its new ***QX-PC***.

This coprocessor board, selling for $592, fits in the QX-10's option card slots 1 to 4.

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NEW PRODUCTS

AT A PRESS SPLASH IN TORRENCE, CA, Epson America announced its successor to the ***QX-10***, a slick unit with dual microprocessors, a Z80 to run CP/M software and an 8088 for MS-DOS programs.

The new ***QX-16***, expected to make it to America in early 1985 and priced under $3000, will come with the long-anticipated ***VALDOCS 2.0*** (see Jim Hansen's article in this issue to whet your appetite on that subject).

According to news releases obtained from Epson just prior to press time, the QX-16 will run "virtually all titles from the large library of CP/M software." No claims were made in the releases about how much MS-DOS software the machine would run.

The QX-16 features:

- 256,000 bytes of random access memory (256K RAM), expandable to 512K;
- Two 5.25-inch disk drives providing 360K each for storage in MS-DOS, double density, and 720K in CP/M quad density;
- High-resolution, 640-by-400 pixel, 12-inch monochrome monitor;
- Three expansion ports, plus RS232C serial port, and Centronics port; and
- CMOS clock-calendar with battery back-up.

Among VALDOCS's new features are an integrated spreadsheet-business graphics program, indexed file-manager, address book, enhanced word processor, and type-font, design module letting users design typefaces and graphics characters.

With introduction of QX-16, Epson makes MS-DOS foray while keeping its CP/M bridges intact.

For QX-10 owners wishing to dig into the treasure trove of MS-DOS software, ***TITAN TECHNOLOGIES INC.*** of Ann Arbor, MI, is offering its new ***QX-PC***.

This coprocessor board, selling for $592, fits in the QX-10's option card slots 1 to 4.

The Titan board is sold with —

- 192K RAM (Upgrades can increase that to 512K.);
- Two pre-boot disks;
- MS-DOS 2.11;
- MS-DOS User's Guide;
- QX-PC Start-Up Guide;
- Keyboard overlay; and
- Set of adhesive labels.

Because the QX-PC simulates the IBM PC's keyboard, the keyboard overlay and key labels identify the new functions of the keys.

According to Titan, the new QX-PC has improved PC compatibility, supports the ComFiler hard disk, has an RS232 port, and sports an ANSI driver.

Beginning October 22, owners of the original QX-PC may exchange them for the new board for $39 plus $3.50 to cover freight and insurance.

Titan also told *Epson World* several new products are in the works for the QX-PC:

- An ***MS-DOS RAM DISK*** using 180K of RAM on the QX-10's motherboard to simulate a disk;
- An ***MS-DOS PRINTER BUFFER*** (size unspecified); and
- ***GW BASIC***, available in early 1985, allowing the QX-10 to run programs written in interpreted Basic.

GEVEVA™ TAKES TELECOMMUNICATIONS NETWORKS BY STORM

By John P. Mello Jr.

IF ANY GENERALIZATION CAN BE made about portable computer owners, it's they love to telecommunicate. And no one is learning this fact faster than the nation's two largest telecommunications forums, The Source and CompuServe.

Since Epson introduced the successor to its HX-20, the Geneva PX-8, both networks have benefited from a vociferous exchange of ideas and programs from owners and potential owners of the latest entry into the "low-end" lap computer market.

On The Source the place to be is the "PX-8" conference on Participate, affectionately known as "Parti." On CompuServe those in the know hang around EpsOnLine.

Sherwin Levinson started the PX-8 conference. It's particularly appealing to potential buyers of Epson's 8.5-by-11.5-by-1.75-inch dynamo. Through Sherwin's group purchasing program, a basic PX-8 can be bought for $770 ($995 list) and its 120,000 byte (120K) RAM disk for $390 ($484 list).

QUESTIONS AND ANSWERS

Sherwin also offers technical assistance to Geneva owners. So does another frequent PX-8 visitor, Steve Gibson — inventor of the highly-regarded Gibson Light Pen and former *InfoWorld* columnist.

Here are some typical questions and answers on the Geneva appearing in the PX-8 conference:

Q. Of the articles and ads I've read on the PX-8, none have addressed the subject of communications capabilities. Can I assume there is no problem?

A. No problem at all. In fact, I now have a version for the PX-8 of the (somewhat) famous MODEM7 program that allows essentially error-free transmissions and receipt of any kind of file, including executable programs. I'll make that available to anyone that wants it.

The terminal program supplied with the PX-8 is quite adequate and allows for adding transmission delays after each character, line, and 128-byte block — the key thing missing from the Hewlett-Packard 110's communication software.

The only real complaint I have with it is that it doesn't have a file directory function built in. But you can put your communications on "hold" and exit to use WordStar or do a directory while still connected, then re-enter the terminal program and just go on from where you left off.

Q. Does the PX-8 have a built-in modem?

A. Yes and no. The PX-8 can accept one accessory at a time that attaches to the back of the machine and becomes an integral part of it.

Five accessories of this type are available (all with their own battery supply):

- Direct-connect, auto-dial, auto-answer, 300-baud modem;
- 60K RAM disk;
- 120K RAM disk;
- Multi-unit, combining 60K RAM disk, modem, and room for a 32K ROM cartridge; and
- Blank unit with expansion bus connections and a prototyping circuit board, for folks intent on designing their own accessory pack.

There is also a battery-powered acoustic coupler (300 baud).

Q. Does the unit have potential for connecting to an auxillary monitor for times when one wouldn't have to squint at that tiny screen?

A. Not really. There is a way such an accessory could be manufactured using the same port the disk drive's connected to. The HX-20 has a display-driver as an accessory, so some day it might be available.

Q. Is it possible to interface the PX-8 with my present disk drives?

A. Only if you're a real hardware and software whiz.

Q. What makes this unit better than the Hewlett-Packard portable?

A.The built-in software is more functional than the HP-110. The word processor really is; the communications program works.

The HP has more sheer power and more memory, but the power isn't needed for 99 percent of what you do with a lap portable. The extra memory is nice, but 120K is quite adequate and well beyond anything else available in the PX-8's price range.

Don't discount weight. The PX-8, with 120K RAM disk is still 6 pounds; the audio coupler brings that up to 7; the HP is 10 pounds.

Q.Does the on-board tape cassette function like a disk drive?

A.A tape, by its design, is a lot slower than a disk. Keeping that in mind, it's still handy to have for storing things you want to be sure you have a copy of or that you don't use too often and don't want cluttering your RAM disk. Yes, within those limitations, the tape is treated exactly like a disk.

If you used it for random access (like looking up things in a data base), it would take forever. Using it to store things you want to copy to or from your RAM disk, or long files you want to upload or download, it really comes into its own.

It uses microcassettes, like the Lanier pocket secretary; each holding about 120K on a side.

PRACTICAL TIPS

Sherwin's PX-8 conference also offers tips to help Geneva owners get more out of their machines.

When one owner complained about being unable to use her Epson printer, equipped only with a parallel port, with her PX-8, one conference member offered a hardware solution:

"There is a solution to running your Epsy on an MX-80. Botek Instruments of 4949 New Hampshire, Untica, MI 48087, makes a serial-to-parallel interface which permits me to drive any parallel printer with a Centronics port. It has a switch-selectable baud rate up to and including 9600 baud."

Steve Gibson passed on this tip about viewing the Geneva's liquid crystal display:

"I discovered how to look at Epsy's display! The swivel-lid was tricking me. Since Epsy has a swivel panel angle, I was trying to put it at the same sort of angle as a CRT (you know, so the x-rays zap you in the face). But that's wrong for LCDs. I realized the Model 100's [another lap computer using an LCD] LCD is flat with the keyboard. When I put the Epsy's panel flat, the display was wonderfully readable."

SPLIT SCREEN

And Sherwin explained how to create a split screen on the Geneva (exhibit 1).

Anyone familiar with electronic networks will immediately see the advantage of the split screen. What the network is sending you scrolls by on one screen; what you send to the system scrolls by on the other. If you were "chatting" with someone, for example, what he or she "said" would appear on one screen; what you said on the other.

"You can use one of the virtual screens to hold information you may wish to refer to later," Sherwin explained, "and the other to do your work, switching back and forth at will.

"For example, you can do a directory display on screen two before you enter TERM, then return to screen one to connect up. When you want to upload a file, you can refer to screen two to find its name.

"The type of virtual screen setup that I find most useful is having both screens visible at the same time, side by side.

"I set up both virtual screens to be 48 lines long, with screen one 48 characters wide. . . Then I use screen one to receive notes and switch to screen two before I start writing replies.

"Any time I need to refer to the notes I'm replying to, I just go to screen 1 (control-left arrow) and scroll up or down to review it. Then I switch to screen two to continue writing."

PX-8 ON COMPUSERVE

For PX-8 owners with a subscription to CompuServe, there's EpsOnLine, a special interest group (SIG) sponsored by the communications department of the computer products division of Epson America.

To get to EpsOnLine, a CIS subscriber types G PCS-19 at any function prompt (!).

EpsOnLine provides support for all Epson products, but PX-8 owners have made their presence increasingly felt.

Like the PX-8 conference on The Source, Geneva owners can get tips and technical assistance from EpsOnLine. They can also get free software from the SIG's XA data bases.

Programs available in the EpsOnLine data bases include:

- A telecommunications program (EPX740.BIN; submitted by user i.d. 76703,551; in data base XA0);
- A patch enabling PX-8 WordStar to work with non-Epson printers (EP44.BIN; 74015,377; XA4);
- A program to display the relative charge in the Geneva's nicad batteries (BATERY.BIN; 75655,1652; XA4);
- Basic programming information by Epson's product development staff on the PX-8's analog-to-digital converter (A-TO-D.DOC; 75655,1625; XA4)
- Basic information on the Geneva's bar-code port (BARCOD.DOC; 75655,1625; XA4);
- A program to plot biorhythm charts (BIO.ASC; 75655,1625; XA4); and
- A program to "pretty" print program listings (LISTER.ASC; 75655,1625; XA4). ●

You Type	Result
Enabling Split Screen	
9	Configure screen mode
2<CR>	Choose screen mode 2
48<CR>	Set 48 lines in screen 1
48<CR>	Set 48 columns in screen 1
1<CR>	Choose screen 1 as default
<CR>	Choose character marking boundary between displays
<ESC>	End setting screen mode configuration
<ESC>	Exit configuration program
Disable Split Screen	
9	Configure screen mode
0<CR>	Choose screen mode 0
40<CR>	Set 40 lines in screen 1
8<CR>	Set 8 liines in screen 2
1<CR>	Choose screen 1 as default
<ESC>	End setting screen mode configuration
<ESC>	Exit configuration program

Exhibit 1. Configuring Split Screen. To set up split screen, run CONFIG. It may be chosen from main menu or at the A> prompt type CONFIG<CR>. <CR> means press the return key.

GENEVA SOFTWARE

Product Features

PX-KEY **$19.95**

PX-KEY is a utility program that makes the *function keys* on the Geneva (PX-8) computer much easier to use. Simply enter the program, depress the function key you want to change, and enter the desired key codes. When you are done, all codes will be stored in memory, under a file name you define. Then, any time you want to use your function keys, simply enter the function key file name - and all your function keys will be operative!

PX-100 ..... **$149.95**

PX-100 is a full featured communications program that includes autodial and autologon. Both user and terminal passwords may be automatically submitted. In addition, PX-100 will emulate major features of a VT-100 terminal allowing hookup to a variety of mainframes. This is a significant enhancement in the application utility of the Geneva computer.

PX-CODE **$395.00**

This is the *bar coding software* for the Geneva computer. It includes a high quality ruby tipped reader wand, decoding software, and bar code printing software to support the Epson printers (MX,FX).

PX-VIDEO **$495.00**

This software automates the control of rentals at *Video Rental* stores. Customers and tapes are entered on the data-base, and the Geneva keeps track of who's got what. Also maintained is the frequency of rentals and last activity date, information so necessary in making correct business decisions. **PX-CODE** may be added to further automate the process. Requires minimum 60K RAM and one disk drive. Will support up to 500 names and 2500 inventory items; expandable simply by plugging in more disk drives.

Technical Data

*All software mentioned above has been written specifically for the new **Epson PX-8** computer. They are written in "C", and assembly, which means that these programs are small and fast. We also do full custom development of software and supporting hardware.*

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VARs MAKE EPSONS WORK

EPSON AMERICA HAS BEEN A PROponent of the vertical applications of its computers — how those computers may be used in concert with custom software to accomplish specific tasks. Epson has encouraged third-party programmers in their efforts to market that software.

The vertical applications mentioned below are representative of some of the diverse applications of Epson computers. If you desire further information on these products, simply circle the number corresponding to the product description below on the Reader Service Card (bound into the magazine between Pages 42 and 43). Material will be sent directly to you from the vendor.

— Carl Cramer

The products below are neither guaranteed nor implicitly endorsed by Epson America, Inc. or Epson World Magazine.

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303-945-8686

BAR CODE ▼ 32
HX-20, QX-10
Bar code applications, including LOGMARS labels and data collection. Dot matrix printer link. Laser wand in development.
Cardinal Computers Inc.
1600 North I-35E, Suite 109
Carrallton, TX 75006
214-446-9650

METTLER SQC 20 SYSTEM ▼ 33
HX-20
Statistical quality control for weight values, including pharmaceutical industry.
Mettler Instrument Corp.
PO Box 71
Hightstown, NJ 08520
609-448-3000

WINFIELD'S NEW COMPUTERIZED KEY-MANAGER ▼ 34
HX-20
Portable computer key-encoder, 24-hour automatic deadbolt lock for hotels.
Winfield Locks Inc.
1613 Monrovia Ave.
Costa Mesa, CA 92627
714-642-7840

VIEWSCAN TEXT SYSTEM ▼ 35
HX-20
Low vision clinical services for school-age children.
Sensory Aids Corp.
205 West Grande Ave., Suite 110
Bensenville, IL 60106
312-766-3935

TIME ACCOUNTING SYSTEM ▼ 81
HX-20
Client accounting; posts time and money spent on 50 activities.
Brian Lomasky
984 Hanover Rd.
Meriden, CT 06450
203-237-9272

REMODELING & SWIMMING POOL CONTRACTORS ▼ 44
QX-10
Lead control. Generates 7 reports for managers. Job costs; maintains 125 jobs, including cost vs. budget, open accounts, contracts OK to build, jobs in progress, contract completed but not cashed, combined work in progress and sales.
P.A.R.C. Inc.
3840 E. Eight Mile Rd.
Detroit, MI 48234

LENDING INSTITUTION SOLUTIONS ▼ 48
HX-20
Computes simple interest and installment loan payments, finance charges.
Chariot Computer & Consultants Inc.
PO Box 929 - 245 So. Main St.
Greensburg, PA 15601
412-838-9560

FORCE 1 ▼ 47
HX-20
Industrial controller and data acquisition system
NAVCOM Inc.
North Main St.
Huron, OH 44839
419-433-7626

HX-FORTH ▼ 53
HX-20
FORTH high-level language.
Stable Technology Inc.
c/o G.W. Smith & Assoc.
62 North Chappel St.
Newark, DE 19711
302-738-7308

LIFETRACK ▼ 41
QX-10
Data base management for prospects, clients, policies, underwriting cases, applications, letters, forms, annuities and funds.
Continental Software Inc.
314 Washington St.
Jamestown, NY 14701
716-483-5225

POINT OF SALE MANAGEMENT SYSTEM ▼ 55
QX-10
Computerized cash register and inventory system; 19 reports.
Decipher Business Systems
25722 Orchard Rim Ln.
El Toro, CA 92630
714-770-5694

CIRCLE NO. 5 ON READER SERVICE CARD

HOLIDAY SPECIAL—ORDER BEFORE 12/31/84 RECEIVE THE HOLIDAY SYMBOLS FONT FREE!!

The Banner Machine™ is an easy-to-use menu-driven program that operates like a word processor. Print signs in minutes for retail businesses, medical offices, schools, or any organization with a need for large, eye-catching signs.

- Makes signs up to 10" tall by any length.
- Borders are variable, up to ¾" wide.
- Eight sizes of letters are available from ¾" to 6½" high.
- Additional fonts are available: Condensed Gothic, Tombolina, and Holiday Symbols (11 symbols: Christmas tree, Hanukkah Menorah, cross, bell, horn of plenty, heart, shamrock, jack-o-lantern, birthday cake, flower, and star of David.)
- Proportional spacing, automatic centering, right and left justification.
- Standard and Compressed modes of print.
- Reverse printing: the background is black and the letters are the color of the paper used to print the sign. This one is especially attractive using colored paper.

With the QX-10, use the MX with Graftrax or the FX or RX printers.

BANNER MACHINE & FONT 1 **$79.95**
ADDITIONAL FONTS **$19.95 each**

ORDER TOLL FREE 10-6 MON-SAT
800-762-5645
Cardinal Software
13646 Jeff Davis Hwy.
Woodbridge, VA 22191 Info. (703) 491-6502

EPSON GENEVA PX-8 SOFTWARE

APPOINTMENT KEEPER +
An appointment calendar program. Requires PX-8's portable printer.

PX-CHANGER
A cash register program.

GALACTIC WAR
A space adventure game.

Programs on microcassette.
Now only $25.00 each
(includes shipping).

Send check or money order to:
SOFTWARE RICHES
RIVERVIEW TERRACE
IRVINGTON, NY 10533
(914) 591-6470

Free catalog available.

CIRCLE NO. 23 ON READER SERVICE CARD

E-Z QUOTE 51
HX-20
Quotation system with estimating programs and full page printer option.
CMI
1433 Fullerton Ave. - Suite M
Addison, IL 60101
312-953-1555

KENSICO RATING SYSTEM 45
HX-20
Insurance rating designed to give on-the-spot quotes.
Kensico Insurance Rating Systems Inc.
90 Columbus Ave.
Valahalla, NY
914-946-2226

TELE-ORDER 89
HX-20
Turnkey approach to remote order entry allows customer-sales people access to information and simplifies the placement of orders using remote terminal.
Network Solutions Inc.
89 Jefferson Blvd.
Providence, RI 02901
401-781-3850

QXDRAW 84
QX-10
Graphics design tool.
American Small Business Computers
118 S. Mill St.
Pryor, OK 74361

ACS SPEECHPAC 85
HX-20
Computer and text-to-speech converter.
Adaptive Comm. Systems Inc.
PO Box 12440
Pittsburgh, PA 15231
412-264-2288

WIND-ASSISTED VESSEL PERFORMANCE 75
HX-20
Instrumentation package for on-board wind-assist measurements.
SNAME
c/o University of South Florida
Tampa, FL 33670
813-974-2581

MICROSTOREHOUSE 87
HX-20
Mail-merge program using SKIWRITER.
Micro Quality Portable Solutions
Box 1735
Waterville, VT 05492
802-664-5320

CIRCLE NO. 15 ON READER SERVICE CARD

BUSINESS SOFTWARE

— EPSON HX-20 —

Database Management,
HXCALC Spreadsheet,
Inventory Control,
Financial Analysis,
Doctor Patient Alert,
Realtor Home Mortgage Qualification,
Stock Portfolio Management,
CAI Database,
Time Accounting / General Ledger

— EPSON QX-10 —

The Easiest-to-Use Database Management System that is Available!

For More Information:
Brian Lomasky
984 Hanover Road
Meriden, CT 06450
(203) 237-9272

800 225-5800
800 225-5800
800 225-5800
SUBSCRIBE NOW!

STATISTICAL ANALYSIS 82
QX-10
Keyboard entry programs (45), including analyses of variance.
Micro-Research
PO Box 70
Forest Ranch, CA 95942

TRUCKER 68
HX-20
Accounting for trucker on the road.
The Motherboard Corp.
110 N. College Ave.
Fort Collins, CO 80524
313-484-8602
Up to 26 pateints at one time.

POWER PACK 64
HX-20
Restores power without electrical plug. HX-20 runs for several hours using four AA-type batteries.
Software Riches
Riverview Terrace
Irvington, NY 10533
914-591-6470

THE SYDNEY INTERIORS ESTIMATOR 42
HX-20
For sales people, contractors and jobbers who perform estimates in the interiors industry. Work in imperial or metric measurements.
Interior Business System.
Sydney Data Products
1750 Montgomery St.
San Francisco, CA 94111
415-986-6911

HX-20 SOFTWARE PROTECTION II 100
HX-20
Machine-language program that resides below BASIC. Once exceuted, cannot be listed, saved, edited, run in direct mode or unprotected.
Marlow & Assoc.
136 Lowell St.
Somerville, MA 02144
617-666-3591

TAX-PACK 79
QX-10
Accounting and practitioner program.
Alpine Data
635 Main
Montrose, CA 81401
303-249-1400

I want it! TRAINING

The Complete Epson Computer Primer

By David Barrett & Michelle Mehterian

Unlock the secrets of Valdocs 2!

People have a special feeling about Epson. Wherever you're going, in school, business, or life, Epson computers and software can open a whole new world for your creativity.

The Complete Epson Computer Primer is part of this amazing revolution. Valdocs 2 offers *more features* and modules than *any* other integrated software package on the market. Find out how to use the power of Valdocs 2, MS-DOS, CP/M, TPM III, Color, and much, much more.

The Complete Epson Computer Primer details the use and power of the HX-20, PX-8, QX-10, and the *brand new* QX-16 personal computer. Tips and tricks *not found* in the manuals, contacts for user groups and telecommunications, and complete instruction for interfacing hard disks, modems, printers, and much more.

You'll be learning forever — so why not make it fun?

Regularly priced at $19.95, order now and get it for $15.95 (plus $3.00 shipping and handling — Calif. residents add 6½% sales tax).

(***The Complete Epson Computer Primer*** will not be available until the release of Valdocs 2. Est. 12-15-84.)

VIDEO

NEW! — Valdocs 2 on Video!

Learn how to use Valdocs 2 step by step in detail. *Video Val-2* is a 60 minute video tape from Barian that will teach you, your class, or your employees how to get the most out of Valdocs on Epson Computers. Learn how to use — word processing, spreadsheet, cardfile database, scheduler, business graphics, telecommunications, indexing system, and TPM utilities. Imagine, in one hour you can have all the training you'll need to use the most feature packed integrated software package on the market today. *Order today and save $20.00.*

***Video Val-2* is regularly priced at $79.95. If you order before Dec. 31, 1984, your price is only $59.95** (plus 3.50 shipping and handling—Calif. residents add 6½% sales tax).

Coming soon... VALDRAW and VALPAINT on video!

ACT NOW!

ORDER FORM

Send to: **THE BARIAN COMPANY**
12021 WILSHIRE BLVD.
SUITE 148
LOS ANGELES, CA 90025

or call: **(213) 306-8582**

YES!!! I want to take advantage of this offer!

Please send me _____ copy(ies) of ***The Complete Epson Computer Primer*** at $15.95* plus $3.00 S/H each for a total of $ _____.

Please send me _____ copy(ies) of ***Video Val-2***, the video tape of how to use Valdocs 2, for the special price of $59.95* plus $3.50 S/H each, for a total of $ _____.

Enclosed is a check or money order for the total, or my VISA/MASTERCARD number to bill to.

Name _____

Address _____

City _____ State _____ Zip _____

Visa/MC# _____ Exp. _____

Signature _____ Date _____

*California residents add 6½% sales tax.
VALDOCS is a Registered Trademark of Rising Star Industries, Inc./VALPAINT, VALDRAW, and HASCI are Trademarks of Rising Star Industries, Inc./Epson, QX-10, PX-8, HX-20, and QX-16 are all Trademarks of Epson America, Inc. / Video Val-2 is a trademark of The Barian Company/MS-DOS is a trademark of Microsoft Corporation/CP/M is a trademark of Digital Research Corporation/TPM III is a trademark of Computer Design Labs Corporation.

CIRCLE NO. 4 ON READER SERVICE CARD

CP/M SOFTWARE AVAILABLE FOR QX-10

IF YOU WANT TO EXPLORE BEYOND THE LIMITS OF THE VALDOCS system, a number of manufacturers are waiting for you in the CP/M galaxy. The following software packages, listed by manufacturer, are available for the QX-10 and QC-10 computers. Ask for them at your Epson dealer.

—Carl Cramer

QX-10	
ADVANCED MICRO TECHNIQUES	
DPATCH	$195
MICROLIB	$295
AMERICAN TRAINING INTERNATIONAL INC.	
CP/M (requires CP/M 2.2)	$75
dBASE II	$75
MBASIC	$75
MICROPLAN	$75
MULTIPLAN	$75
SUPERCALC	$75
WORDSTAR	$75
ARTIFICIAL INTELLIGENCE	
(CB-80 compiled; single users)	
DENTAL	$1,195
MEDICAL	$1,195
ASHTON-TATE	
dBASE II	$495
FRIDAY	$295
ASK MICRO INC.	
(The following require CBASIC and possibly additional modules.)	
ACCOUNTS PAYABLE	$595
ACCOUNTS RECEIVABLE	$595
GENERAL LEDGER	$595
INVENTORY	$595
PAYROLL	$595
POINT OF SALE	$595
PURCHASE ORDER ENTRY	$595
SALES ORDER ENTRY	$595
ACCOUNTING PLUS	
(requires 48K RAM; compiled with CB-80 compiler)	
ACCOUNTS PAYABLE	$595
ACCOUNTS RECEIVABLE	$595
GENERAL LEDGER	$595
INVENTORY	$595
MAILING LIST & LABELS	$595
PAYROLL	$595
POINT OF SALE	$595
PURCHASE ORDER ENTRY	$595
SALES ORDER ENTRY	$595
BLUE CHIP SOFTWARE	
BARON	$59.95
MILLIONAIRE	$ 59.95
BORLAND INTERNATIONAL	
WORD INDEX	$195
BUSINESS SOFTWARE PYT. LTD.	
(requires MBASIC)	
PLANFIN	$195
PROFIN	$295
CAXTON SOFTWARE PUBLISHING	
CARDBOX	$245
CHANG LABS	
CONSOLIDATION MODULE	$295
MEMOPLAN	$195
MICROPLAN BASIC PACKAGE	$495
PROFITPLAN	$195
SOLUTION BOOK	$15
COMSHARE TARGET SOFTWARE	
COMBINATION PAK	
PLANNERCALC & TARGET APPLICATIONS GUIDE	$125
PLANNERCALC	$99
CONDOR COMPUTER CORPORATION	
CONDOR I	$295
CONDOR III	$650
CP AIDS	
STANDARD TAX	$595
DIGITAL MARKETING	
DATEBOOK	$295

THE ESSENTIALS FOR EPSON OWNERS:

1. MICRO-GRIP™ V

Designed specifically for the Epson MX-70/80, RX-80 and printers that are based on the Epson design

Bill Cole Enterprises wants you to know about the all new Micro-Grip™ V. New features include enhanced Mounting Brackets and Pressure Springs to prevent any possible shifting or sliding of paper. This amazing product was developed by Bill Cole Enterprises after months of research. Easily installed, Micro-Grip™ V can give you the friction feed capability you want without the high cost of buying a letter-quality printer. Once added to your printer, Micro-Grip™ will not disturb the tractor feed capabilities of your machine, yet is easily removed for maintenance or repair. Micro-Grip™ has been designed for the Epson MX-70/80, RX-80, and printers that are based on the Epson design such as the IBM PC 5152, Commodore 4022, and the H.P. 828086/82090 5B. We're so confident that you'll find our new Micro-Grip™ to be exactly what you're looking for that we're giving you an **unconditional money back guarantee** if not completely satisfied! Micro-Grip™ V — better than ever and **still** just **$39.95** plus shipping!

#670 Micro-Grip™ V	
Quantity	**Price**
1-5	$39.95/ea.
6-11	35.95/ea.
12 on up	29.95/ea.
plus shipping	

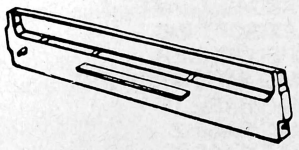
2. BIG–NAME DISKETTES AT NO–NAME PRICES!

Bill Cole Enterprises is pleased to announce the latest addition to our product line, Echo™ Diskettes, which are manufactured by Mag-Media, the nation's leading supplier to the OEM and software market. These diskettes are certified 100% error-free and come with a lifetime guarantee. Hub-ring reinforced; Write Protect Tabs and user labels are included. Jacket sleeves are manufactured to prevent static charge. Diskettes come shrink-wrapped, 10 to a polybag and meet or exceed all industry standards (ISO, ECMA, ANSI, JIS).

		1-4 pkg.	5 pkg. and up
#626	5¼" SS, DD	$12.90/pkg.	$11.90/pkg.
#627	5¼" DS, DD	$16.90/pkg.	$15.00/pkg.

(EACH PKG. CONTAINS 10 DISKETTES)
Each pkg. weighs 1 lb.

3. CARTRIDGES AND RIBBONS FOR EPSON PRINTERS



Our top quality, low priced cartridges and ribbons are manufactured in accordance with the highest standards as set forth by the original manufacturer. Satisfaction guaranteed with immediate replacement if found to be defective.

#644 Epson MX/FX/RX 70/80	**$4.50/ea**
#646 Epson MX/FX/RX 100	**$6.75/ea**

Now in stock!
#647 Epson LQ1500 **$12.50/ea**
(SHIPPING WT. ½ LB. EA.)

TERMS & CONDITIONS
A minimum order of 10.00 is required, not including shipping. Prices effective 10/1/84 and subject to change without notice. Automatic credit is extended to federal agencies, but to keep our prices competitive, we must request payment with orders from all other individuals and institutions. No. C.O.D.'s. Freight charges added to credit card orders. All others shipped freight-collect. CASH ONLY. No merchandise may be returned without prior written authorization from this office. Merchandise ordered in error or not wanted is subject to a 25% restocking charge. Defective material replaced at no charge. All returns limited to a merchandise credit only. Mass. residents add 5% sales tax.

Bill Cole Enterprises, Inc.

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We carry a COMPLETE line of computer supplies. Ask for our Free Catalog #C2

Micro-Grip™ and Micro-Grip™ V are trademarks of Bill Cole Enterprises.

CIRCLE NO. 7 ON READER SERVICE CARD

CP/M SOFTWARE

MILESTONE	$295
DIGITAL RESEARCH INC.	
ACCESS MANAGER	$300
CBASIC	$150
CBASIC COMPILER (CB-80)	$500
DISPLAY MANAGER	$400
DR. ASSEMBLER PLUS TOOLS	$200
PASCAL/MT+	$350
PL/I-80	$550
SPEEDPROGRAMMING PACKAGE	$200
XLT-86	$150
EAGLE ENTERPRISES	
CITATION	$185
ECOSOFT	
(requires Z-80)	
MICROSTAT 4.1	$375
EPIC COMPUTER CORP.	
SUPERVYZ	$150
FAIRCOM	
MICRO B+	
for CBASIC 2	$260
for MBASIC	$260
FINANCIAL PLANNING ASSOCIATION	
MINI MODEL	$495
FOX & GELLER ASSOCIATES INC.	
QUICKSCREEN	
dGRAPH	$295
dUTIL	$99
for CBASIC	$149
for dBASEII	$149
for MBASIC	$149
QUICKCODE	$295
INFOCOM	
DEADLINE	$59.95
ENCHANTER	$59.95
INFIDEL	$59.95
PLANETFALL	$59.95
SORCERER	$59.95
STARCROSS	$49.95
SUSPENDED	$59.95
WITNESS	$59.95
ZORK I	$49.95
ZORK II	$49.95
ZORK III	$49.95
ITHACA INTERSYSTEMS	
PASCAL BZ	$450
PASCAL Z	$450
PASCAL Z and BZ	$600
LEXISOFT INC.	
SPELLBINDER	$495
MAG SOFTWARE INC.	
MAG/BASE 1	$295
MAG/BASE 2	$495
MAG/BASE 3	$795
MARK OF THE UNICORN	
MINCE	$175
MINCE/SCRIBBLE PACKAGE	$275
SCRIBBLE	$175
THE FINAL WORD	$300
METASOFT	
BENCHMARK	$250
BENCHMARK	$499.95
MICRO BUSINESS APPLICATIONS	
ACCOUNTS PAYABLE	$595
ACCOUNTS RECEIVABLE	$595
FIXED ASSET ACCOUNTING	$395
GENERAL LEDGER	$595
INVENTORY CONTROL	$595
MULTI-COMPANY OPTION	$250
PAYROLL	$595
PH.D.	$495
PROFESSIONAL TIME ACCOUNTING	$495
PURCHASE ORDER	$395
SUPERCALC INTERFACE	$100
THE MBA ACCOUNTANT	$1,495
(allows dBASE II access)	
INTERFACE/ACCOUNTS PAYABLE	$100
INTERFACE/ACCOUNTS RECEIVABLE	$100
INTERFACE/GENERAL LEDGER	$100
INTERFACE/INVENTORY	$100
INTERFACE/PAYROLL	$100
MICRO FOCUS	
CIS COBOL	$850
FORMS-2	$200
MICROCOMP CIVIL ENGINEERING SOFTWARE	
COORDINATE GEOMETRY	$500
OPEN CHANNEL HYDRAULICS	$200
PIPE NETWORK ANALYSIS	$600
PIPE NETWORK ANALYSIS	$50
MICROPRO INTERNATIONAL	
CALCSTAR	$195
DATASTAR	$295
INFOSTAR	$495
MAILMERGE	$250
REPORTSTAR	$350
SPELLSTAR	$150
STARINDEX	$195
SUPERSORT	$250
WORDSTAR	$495
WORDSTAR PROFESSIONAL	$695
MICRORIM INC.	
MICRORIM	$450
MICROSOFT	
BASIC COMPILER	$395
COBOL COMPILER	$700
EDIT TEXT EDITOR	$120
FORTRAN-80 COMPILER	$500
MACRO ASSEMBLER	$200
MULISP/MUSTAR	$200
MULTIPLAN	$195
MUMATH/MUSIMP	$250
SORT FACILITY	$195
MICROSTUF	
CROSSTALK	$195
NATIONAL MICROWARE	
SALES PLANNER	$295
NORTHWEST ANALYTICAL	
(requires MBASIC)	
STATPAK	$495
OASIS	
PUNCTUATION & STYLE	$125
THE WORD PLUS	$150
PEACHTREE SOFTWARE	
ACCOUNTING PRODUCTS	
ACCOUNTS PAYABLE	$750
ACCOUNTS RECEIVABLE	$750
CLIENT POSTING & ACCOUNTING	$750
GENERAL LEDGER	$750
INVENTORY MANAGEMENT	$750
JOB COST	$750
PEACHPAK 4	$395
PEACHPAY	$750
SALES INVOICING	$750

COMPU-TECH INTERNATIONAL

We ship around the world

GIVE YOUR EPSON WINGS!

QCS hardrive systems. Just plug it into your computer, install your software, and start flying. Access times are 5-10 times faster. No more hassles with swapping data and program disks around. Keep your CPM, MS DOS, & TPM (Valdocs) programs all on *one* hardrive. Built to last and engineered to perform, these units come with a *full* one year warranty. These drives are trouble free, but if anything does go wrong a 72 hour factory turn around is guaranteed.

ITEM #	DESCRIPTION	LIST	YOUR COST
DSK-40E	10 MEG half height drive (can't be retrofitted to DSK 8X)	$1999.00	**$1799.00**
	DSK-6 series can be retrofitted with a DSK-8X later.		
DSK-62E	10 MEG full height drive	$2499.00	**$2125.00**
DSK-63E	16 MEG full height drive	$2799.00	**$2379.00**
DSK-64E	20 MEG full height drive	$2999.00	**$2549.00**
	DSK-8 series comes with 5 MEG DSK-8X backup sys. installed.		
DSK-82E	10 MEG full height drive	$3799.00	**$3229.00**
DSK-83E	16 MEG full height drive	$4099.00	**$3689.00**
DSK-84E	20 MEG full height drive	$4299.00	**$3869.00**
DSK-8XE	Retrofit 5 MEG removable backup system (for later installation on DSK-6 series.)	$1400.00	**$1325.00**

ALL HARDWARE, SOFTWARE AND CABLES ARE INCLUDED FOR EXTREMELY EASY INSTALLATION.

SELECTED SOFTWARE FOR YOUR SMALL BUSINESS OR LARGE CORPORATION

We have lots more, call or write today for our free catalogue
Hard Disk compatible. Each of these 5 Versa Business modules can be used independently or linked together in any combination to form a complete coordinated system. All Versa Business modules are guaranteed to outperform all competitive systems at a fraction of their cost or your money back! (Must be returned within 30 days in a resellable condition).

DESCRIPTION	COST
VersaReceivables: Menu driven, automatic billing, prints statements, invoices, reports, tracks accounts and much more!	**$99.95 ITEM# VR-1E**
VersaPayables: Tracks current & aged payables, prints checks, vouchers, registers, reports... and much more!	**$99.95 ITEM# VPA-1E**
VersaPayroll: All necessary payroll calculations & government requirements are performed automatically. Operator can alter information easily via screen displays and perform sophisticated functions that were until now limited to more costly software.	**$99.95 ITEM# VPY-1E**
VersaInventory: A complete inventory control system, auto tracking of all stocking, backorder sales, pricing and reordering information. Prints invoices, listings, reports, price lists and lots more.	**$99.95 ITEM# VI-1E**
VersaLedger: Handles 2400-10,000 entries per month, stores all check & ledger information forever. Prints track or feed checks, handles multiple checkbooks & ledgers, prints 17 customized accounting reports and a whole lot more. All software comes with sample printouts, manuals, and step by step instructions. Even an inexperienced user can achieve professional results in just one afternoon.	**$149.95 ITEM# VL-1E**

OR BUY THE ENTIRE 5 PACKAGE SYSTEM -
VERSA PACK PLUS ITEM# VP+5 YOUR PRICE IS ONLY **$499**

ADDITIONAL SOFTWARE FAVORITES

DESCRIPTION	LIST	YOUR COST
D BASE II (Ashton Tate)	$700.00	**$595.00**
FRIDAY (Ashton Tate)	$295.00	**$399.97**
PERSONAL PEARL (Pearlsoft Systems)	$295.00	**$265.50**
PEARL LEVEL III (Pearlsoft Systems)	$495.00	**$445.50**
WORDSTAR/SPELLSTAR (Micropro)	$695.00	**$625.00**
WORDSTAR PROFESSIONAL (Micropro)	$695.00	**$625.00**
INFORSTAR (Micropro)	$495.00	**$445.00**
STANDARD TAX (CP Aids)	$595.00	**$535.00**
MICROPLAN (Chang Labs)	$495.00	**$445.00**
CIS COBAL (Microfocus)	$850.00	**$722.00**
BASIC COMPILER (Microsoft)	$395.00	**$355.00**
COBOL 80 (Microsoft)	$700.00	**$630.00**
FROTRAN 80 (Microsoft)	$500.00	**$450.00**

C.A.D. SPECIAL
GREAT FOR BUSINESS, ENGINEERING, SCIENCE AND GRAPHIC ARTS

Q PLOTTER SOFTWARE
(Look for the rave review in July's Epson Connection)

Q PLOTTER & AMDEK PROFESSIONAL 100 XY DIGITAL PLOTTER PKG.:
10" x 14" Range on paper or film, 3 pen unit (non automatic), standard parallel interface accepts ASCII codes. Just plug into your QX-10 printer port, load up your Q Plotter and start creating.
ITEM # CAD-1E LIST $1000 **SUPER SPECIAL! BOTH FOR $ 599.97**

C.A.D. + SPECIAL

Q PLOTTER & AMPLOT II PKG:
Same as above except plotter is 6 pen automatic, built in arc-circle & windowing software. Has both serial & parallel interface.
ITEM # CAD-2E LIST $1350 BOTH FOR **$1125.00**

SINGLE PRICES:	Q PLOTTER		**$ 250.00**
	100XY PLOTTER (#AD-1E)	(LIST $750)	**$ 425.00**
	AMPLOT II (#AD-1E)	(LIST $1100)	**$ 900.00**

TRIPP LITE BATTERY BACK-UP SYSTEMS

Self contained emergency systems include heavy duty gel cel battery, 3 way line filter, indicator lites, audible alarm, and four outlets in attractive desk top cabinet.

	ITEM #	LIST	YOUR PRICE
425 WATT	BC-425FCE	$539	**$ 494.00**
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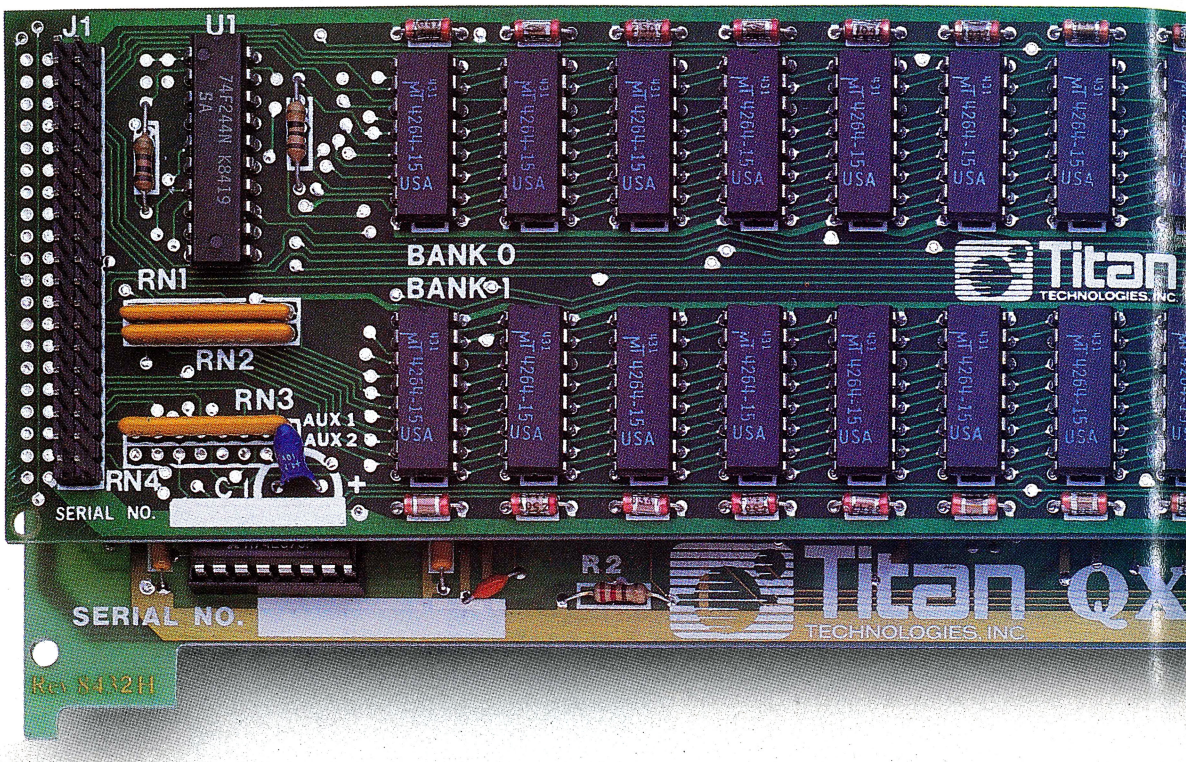

the co-processor card play like

Titan's *new* QX-PC brings the world of IBM PC-compatible computing to your Epson® QX-10® computer at a fraction of the PC price. With the QX-PC, you can run popular programs like Lotus™ 1-2-3™, Symphony™, dBase III®, WordStar®, Framework®, and most other off-the-shelf programs written for the IBM PC®. (See the compatibility list in this ad for details.) Best of all, you can have the world of PC computing and still continue to use Valdocs® and your CP/M® programs just as you did before.

A PC-compatible at a fraction of the PC price. When you plug the QX-PC into your QX-10, you get an IBM PC-compatible at a mere one-fifth of the price of an IBM PC. Your PC-compatible features two double-density disk drives, support for a hard disk, high-resolution monitor, a real-time clock, one serial port (RS-232C), and one parallel port.

Slip a second computer into your Epson. The QX-PC is an advanced co-processor board that plugs into a waiting slot in your Epson. It includes a powerful 16-bit 8088 CPU. The QX-PC even has its own built-in memory. A full 192K RAM is standard, and you can expand at any time to 512K.

Attractive optional features, too! Titan also offers attractive optional features to enhance the performance of your PC-compatible. Add memory up to 512K with a second auxiliary board. Speed up your operations with MS-DOS® RAM DISK software that lets you use part of your QX-10's RAM to

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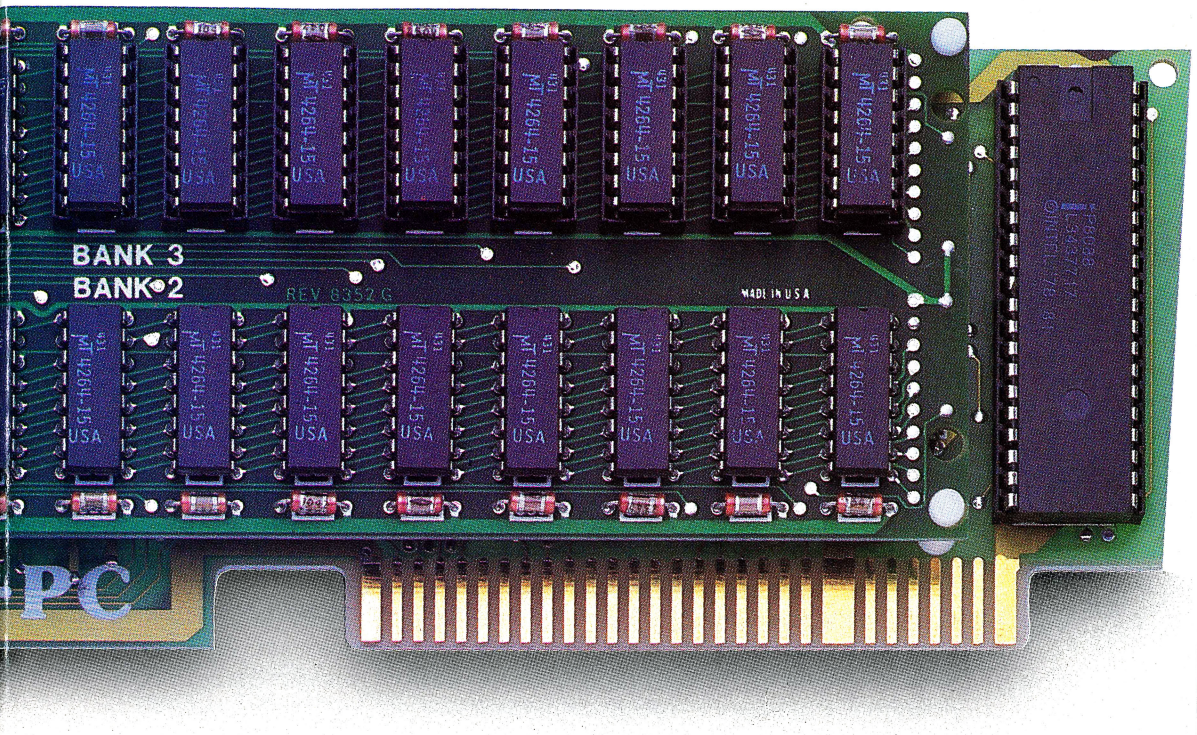

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MS-DOS Co-Processor Board for Epson® QX-10
• Allows popular 16-bit MS-DOS and PC-DOS software to run on the QX-10.
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simulate an actual disk. Improve your productivity with printer buffer software that allows you to work on one task while you're printing out another. And run popular programs written in interpreted BASIC using our GW-BASIC software.

The QX-PC is an official Titan Technologies product. For more information, call Titan at (313) 662-7777 or contact your local Epson dealer.

Titan
TECHNOLOGIES, INC.

TITAN TECHNOLOGIES TESTED SOFTWARE LIST FOR THE NEW "QX-PC"

(MS-DOS CO-PROCESSOR BOARD INSTALLED IN THE EPSON QX-10)

EFFECTIVE DATE: OCTOBER 2, 1984

Here is a list of programs now on the market that have been tested by TITAN TECHNOLOGIES, Inc., by independent software test firms, or by both. All the programs tested are the IBM PC versions of the software and some may have specific hardware and/or software requirements to function properly.

TITAN TECHNOLOGIES, Inc. will continue to evaluate Top-Selling software programs for compatibility with the NEW QX-PC MS-DOS CO-PROCESSOR BOARD.

This list in no way constitutes a guarantee of the complete operating efficiency of, or an endorsement of, any particular program, for any particular purpose, by TITAN TECHNOLOGIES, Inc.

ACCOUNTING & BUSINESS MANAGEMENT

PROGRAM/Publisher

1. ACCOUNTS PAYABLE/BPI Systems, Inc.*
2. GENERAL ACCOUNTING/BPI Systems, Inc.*
3. GENERAL LEDGER/Peachtree Software, Inc.**
4. INVENTORY CONTROL/Peachtree Software, Inc.**
5. PAYROLL/Peachtree Software, Inc.**
6. HARVARD PROJECT MANAGER/Harvard Software

COMMUNICATIONS

7. CROSSTALK XVI/Microstuf, Inc.
8. SPREADSHEET LINKS/Dow Jones & Co., Inc.
9. PFS ACCESS/Software Publishing Corp.
10. PC-TALK III/Freeware

DATABASE

11. DATA BASE MANAGER II/Alpha Software Corp.
12. dBASE II/Ashton-Tate
13. dBASE III/Ashton-Tate
14. FRIDAY!/Ashton-Tate
15. PFS FILE/Software Publishing Corp.
16. PFS REPORT/Software Publishing Corp.
17. RBASE 4000/Microrim, Inc.
18. OMNIFILE/SSR Corporation
19. DATAPLUS-PC/Professional Software, Inc.

EDUCATIONAL/RECREATIONAL

20. FLIGHT SIMULATOR/Microsoft****
21. ZORK I/Infocom, Inc.
22. TRIVIA FEVER/Professional Software, Inc.

FINANCIAL

23. THE HOME ACCOUNTANT/Continental Software Co.*
24. MANAGING YOUR MONEY/Micro Education Corp. of America
25. TAX PREPARER/Howard Software Services*
26. REAL ESTATE ANALYZER/Howard Software Services*
27. TAX DECISIONS/Eagle Software Publishing*
28. MONEY DECISIONS/Eagle Software Publishing

INTEGRATED PACKAGES

29. 1-2-3/Lotus Development Corp.**
30. SYMPHONY/Lotus Development Corp.**
31. OPEN ACCESS/Software Products International**
32. FRAMEWORK/Ashton-Tate

SPREADSHEETS

33. SUPERCALC II/Sorcim
34. SUPERCALC III/Sorcim
35. VISICALC IV/Visicorp
36. ADVANCED VISICALC/Software Arts, Inc.
37. MULTIPLAN/Microsoft
38. FLASHCALC/Visicorp

SYSTEMS, UTILITIES, & LANGUAGES

39. GW-BASIC
40. BASIC COMPILER/Microsoft
41. TURBO PASCAL/Borland International
42. PROKEY/RoseSoft
43. CP/M 86/Digital Research
44. THE NORTON UTILITIES/Peter Norton
45. C-COMPILER/Microsoft
46. MACRO ASSEMBLER/Microsoft

WORD PROCESSORS, SPELLING CHECKERS, & MAILING LISTS

47. WORD/Microsoft***
48. VOLKSWRITE DELUXE/Lifetree Software, Inc.
49. PFS WRITE/Software Publishing Corp.
50. MULTIMATE/Multimate International
51. WORDSTAR/MicroPro International Corp.
52. SPELLSTAR/MicroPro International Corp.
53. MAILMERGE/MicroPro International Corp.
54. EASYWRITER II/Information Unlimited Software, Inc.
55. BANKSTREET WRITER/Broderbund
56. WORDPERFECT/Satellite Software, Inc.
57. WORDPLUS-PC/Professional Software, Inc.

* Requires BASIC.

** The following programs passed the evaluation procedure by setting up the QX-PC System under the following configurations:

—Configured for the Eagle PC
GENERAL LEDGER/Peachtree Software
INVENTORY CONTROL/Peachtree Software

—Configured for the Compaq
PAYROLL/Peachtree Software
SYMPHONY/Lotus Development Corp.

—Configured for the IBM PC with Monochrome
OPEN ACCESS/Software Products International

—Optimized for the IBM PC with BOTH Monochrome & Color
1-2-3/Lotus Development Corp.

*** You cannot use the <CONTROL-SHIFT-RETURN> sequence to start a new page, (this will reboot the system). You cannot copy the WORD program over to the Hard Disk. Attempting to do so will cause irreversible damage to both the program on the diskette and the program copied to the Hard Disk.

**** Runs too slowly to operate properly.

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The QX-PC is an official Titan Technologies product. For more information, call Titan at (313) 662-7777 or contact your local Epson dealer.

CIRCLE NO. 24 ON READER SERVICE CARD

EPSON AT WORK

Stroh Brewery Gets the Suds Out with HX-20

BREWED FROM MALT AND FLAvored with hops, that cold, thirst-quenching mug of beer you enjoy is no simple drink.

At the Stroh Brewery Company's corporate headquarters in Detroit, this complex fermented alcoholic beverage is analyzed using an applications program for the HX-20. By taking a degased beer sample, the alcohol content and density of solids can be found.

The manager of the Corporate Brewing Technical Center, Don Whitney, says, "Until now, this test (run several times a day) was done manually. Now with this program from Mettler Instrument Corporation of Hightstown, NJ, data can go directly from the measuring instrument to the computer." At their seven other locations, however, this procedure is still done by hand and recorded data is still input manually.

The HX-20 with sophisticated laboratory equipment such as digital density meter, temperature controlling devices, connective cables, and a mathematical equation supplied by the program, makes child's play of the needed beer analyses: 25 different brands of Stroh, all competitive brews, and experimentally-produced beers — and that's a lot of suds!

— Nancy Laite

Insurance Program Great Aid

LETTY KREBS, UNDERWRITER AT the Thomas J. Dietz insurance agency in Bedford Hills, NY, says Epson HX-20 is a "great invention."

"We've used the model for over a year," she says, "after seeing a pilot demonstration by Kensico [Insurance Rating Systems Inc., of Valahalla, NY]. I've been happy ever since."

An underwriter for several insurance companies, Krebs uses an EPROM (Eraseable-Programable Read-Only Memory) for insurance comparisons.

"It's very efficient," Krebs says. "When a customer calls I can call up a quote for a specific company by putting in the chip. I can talk on the phone, and make comparisons easily by changing chips." Each chip stores one program for each company, she explains.

Each program includes a breakdown of the company in three areas: homeowner insurance, auto insurance, and personal liability.

Each field includes a calculator function, and programmed specifics as to the rates, make of car, age of applicant, and other pertinent information. The base information can be altered when the insurance company's rates fluctutate.

"I am the primary user of the Epson HX-20, and it's a big difference from doing it by hand," says Krebs. "We used to look up figures in the company manual, write them out, and use a calculator. Then we had to file the information. This is a much more expedient and accurate approach.

"I can keep it on my desk, or take figures down over the phone. It's very easy and quick to change records by changing the chips. It's much faster than using the IBM PC jr, which is the only other computer in the office.

"The pc jr is tied to the desk,and I can take my Epson anywhere. The pc also requires booting up the system and going through menus. I put in the chip and I'm there."

But what about storage of files? "All customer calculations are computed and then printed out on a piece of paper the size of a cashier's receipt, which is how they are stored," she notes.

With accuracy, expediency, and portability, Krebs "couldn't be happier, and couldn't live without it."

— Neva Weschenfelder

Epson Connects Isolated Business To Outside Jobs

CUSHING, ME, IS A QUIET PLACE. It attracts the likes of artists such as the famed Wyeth clan and others who like its tucked-away nature. But to make a living there, self-reliance is a must.

Paula Whittet found the key to Cushing commerce though. The proprietor of Professional Typing Services, she runs a business from her home using an Epson with VALDOCS version 1.19.

EPSON AT WORK

"Living where we do," Paula says, "I'd always have a great commuting distance to work. I like being at home and the chance to work without interruptions."

Quite disciplined, Paula says she usually gets to her Epson by 7 a.m. and works until 3 p.m. The evening hours are always available, too, if she's on a deadline.

This electronic cottage business of one outputs manuscripts, mailing lists, and letters using PeachText. Books and magazine articles typed by her are received and sent to typesetting companies via a modem.

"I've got faith that Epson will be here awhile," says Paula. "People there seem real together and helpful. . . . [For $3100,] "I've a user friendly system: printer, keyboard, and monitor, and since it's CP/M-based, there's lots of software I can use with it."

Paula's husband, Dan, is another Epson devotee. Sharing the same machine, he uses the CP/M-based software for his construction business. Job estimates, final figures, billing, and payroll are at his fingertips.

But is one computer enough in this busy household? Paula says she'd love to expand her successful operation, and if so, "Epson will be the only way to go."

— *N.L.*

QX-10 Wears Hard Hat At Crown

AT CROWN CONSTRUCTION IN Detroit office manager Pamela Gray uses her Epson QX-10 every day — to compute the prices of new swimming pools, garages, and additions to homes.

The QX-10 is only one of the Epson models used at Crown Construction. Two of the salesmen use Epson HX-20s in the field, allowing them to price the job on the spot. When building begins, the superintendent uses an Epson HX-20 to record actual costs. These figures are then compared to the original estimate. That is where Gray comes in:

"I use the larger model to recompute the day's figures. The program is able to calculate and store the three programs: garage, swimming pools, and additions."

PARC Inc. in Detroit designed the program which includes job costs, costs versus budget, contracts to build, and jobs in progress.

Crown Construction also uses a word-processing application in the office for correspondence. The combination of programs allows priced job speculations, price breakdowns, and individual records to be kept on each client.

"We've used it for one and a half years," says Gray. "It runs super and has lightened the load considerably. I think it's great."

— *N.W.*

HX Is Voice For Teen With CP

FOR PEGGY ADAMS, A 14 YEAR old with cerebral palsy living in Nevada City, CA, the Epson HX-20 is her voice to the world.

Before this portable computer hit the market, Peggy was relegated to pointing at "word blocks", (similar to flash cards) to communicate.

That all changed with the advent of the Epson, a specific program designed by Words+ of Sunnyvale, CA, and a voice synthesizer designed to work with the batteries on an electric wheelchair.

Words+ was founded three years ago by a husband and wife team, Walt and Ginger Walotosz. A family member with cerebral palsy got them thinking about expanded computer keyboard use for the handicapped.

Starting with the Epson HX-20, they used as much-off-the-shelf hardware as possible to keep the cost down. Their work provides solutions for people with Lou Gehrig's disease, spinal ailments, multiple stroke victims, and of course, cerebral palsy.

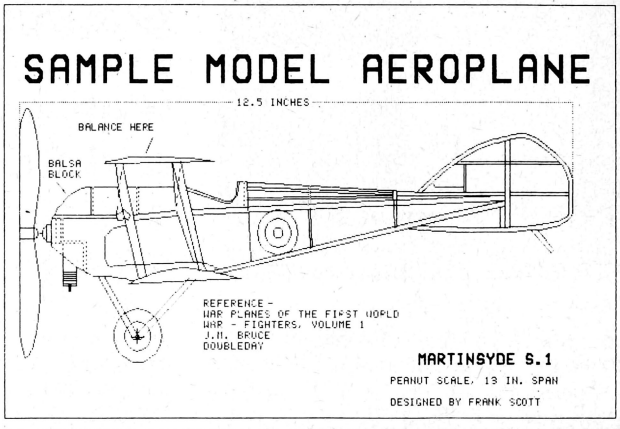
"It makes an incredible difference," says Jim Adams, Peggy's father.

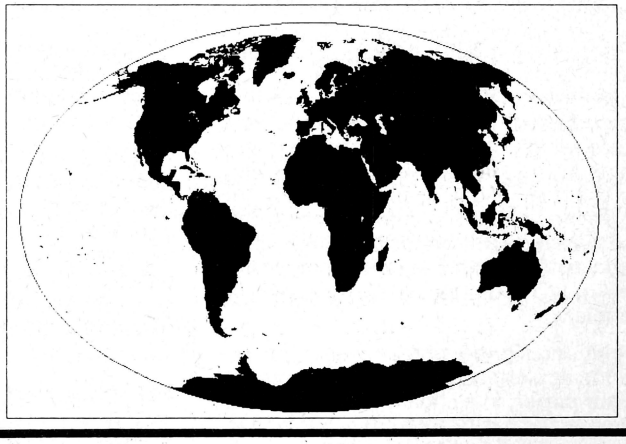
The synthesizer speaks words being typed, allowing the user to prepare re-

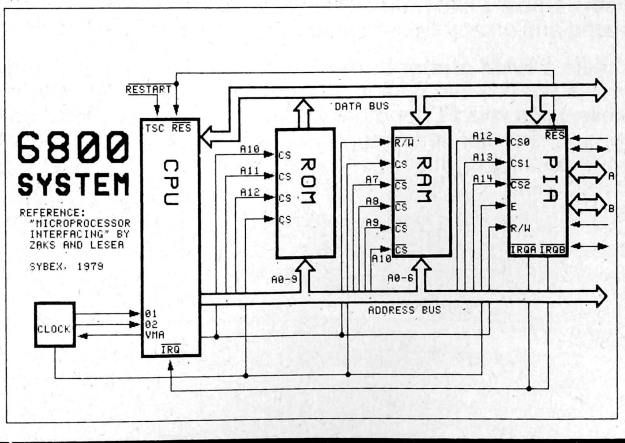
IF YOU OWN A QX-10, YOU OWE IT TO YOURSELF TO GET QXDRAW!

WHAT IS QXDRAW?

QXDRAW is a powerful graphics design tool that exploits the excellent graphics capabilities of the Epson QX-10. It allows someone unfamiliar with computers to design and draw figures, charts, schematics, or blueprints in no time. QXDRAW has the capability to store, retrieve, and print figures drawn on the screen. In addition, it can fully manipulate figures and text by changing size, angles, and dimensions.







QXDRAW —

- Provides an easy-to-use cursor that can be moved about the screen.
- Draws straight lines between points on the screen.
- Draws curves between points on the screen.
- Draws circles and ovals easily.
- Allows solid, dotted or dashed lines to be used.
- Allows lines of varying thickness to be used.
- Includes "area fill" capability.
- Features the Epson function keys: HELP, UNDO, STORE, RETRIEVE, PRINT, INDEX, and STOP.
- Allows text to be displayed at any location, size, or angle.
- Stores and retrieves the screen display on disk.
- Prints the screen display on Epson printers.
- Allows figures and symbols to be created, stored, and retrieved at any location, size, or angle.
- Allows text and figures to be slanted in any direction, giving modern or three-dimensional effect.
- Provides for user-created files to be input and displayed on the screen. This allows data from other programs to be used.

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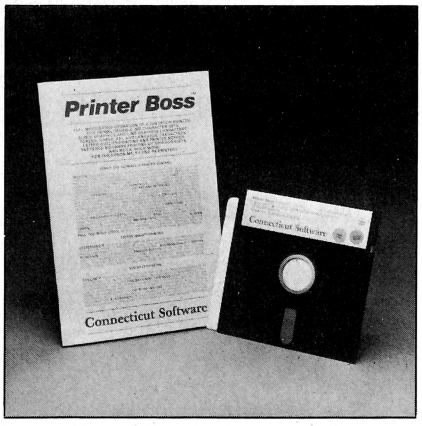
CIRCLE NO. 3 ON READER SERVICE CARD

Printer Boss™



Letter quality printing, sideways printing, RAM printer buffer, 5 alternate IBM character sets, graphics, Greek and screen symbols, custom font design, high-speed character-mode output and full control of your Epson printer on one plain-English menu.

Now you can have all of these features and more for your Epson MX, FX, RX, JX and LQ-1500 printers. And all at the touch of a few keys. Printer Boss™ software is simply the ultimate in printer control!

Print letter quality on your FX printer at full text-mode speed using our unique two-pass dot-matrix approach. Use this **high-speed technique** to overprint dots which fit precisely between the dots in the standard characters, filling in the annoying spaces and greatly enhancing readability while avoiding the smearing effect of doublestrike or other print modes. Or print graphics-mode letter quality on the MX, RX and JX printers.

Print multi-page spreadsheets or reports as wide as you like, **sideways on your paper,** in a choice of five different type sizes, with automatic pagination both vertically and horizontally, at high speed and on any Epson printer.

Create a **RAM printer buffer** of from 1 to 32K, so you can print in background while using your PC for other work. Buffer your normal, letter quality or sideways printing for higher efficiency and throughput.

Download any of **5 different IBM character sets,** including the Matrix, Graphics 1 and Graphics 2 printer sets, the Screen set and the APL set. Use IBM block and line graphics characters, IBM screen characters, Greek and APL symbols on any Epson printer. Printer Boss™ is ideal for IBM graphics software and for **screen dumps.**

Or **custom-design your own character font** using our new font design feature, and build a library of your own fonts for future use.

Printer Boss™ also allows **full menu-based operation** of all control functions of all of the Epson printers. Select and deselect pica, elite, compressed, italic, enlarged, emphasized, doublestrike, underline, superscript and subscript for scores of different type faces. Switch the LQ-1500 between draft and letter quality.

Set line spacing, right and left margins and skip-over-perforation. Load USA, France, Germany, England, Denmark, Sweden, Italy, Spain and Japan langauge sets. **Control** unidirectional, half-speed and proportionally-spaced printing. **Store** and retrieve 10 complete menu settings with a few keystrokes. **Emulate** the IBM-label printer for the IBM-PC.

Print **samples** from the menu, or use program modules provided for printing ASCII tables and spreadsheet and text samples. **Create ASCII files of data,** corresponding to the stored menu settings, which can be accessed by or included in your own programs to set up the printer as you wish.

Printer Boss provides all of the above features on **one easy-to-use menu,** and it's compatible and extremely useful with such word processing and spreadsheet programs as **Wordstar, Lotus 1-2-3, Visicalc** and many, many others. The package is streamlined, professional and intended for serious work by seasoned PC users, but is **easily operable by the neophyte.** As a primary objective the development team designed the menu and its operation to minimize mental effort and fatigue in printer set-up and operation, which is particularly important for the newcomer to computers.

Printer Boss™ runs on the IBM-PC, IBM-PCjr, IBM-XT or any compatibles; PC-DOS 1.1, 2.0, 2.1 or equivalent; double-sided disk drive; 128K RAM; Epson MX, FX, RX, JX or LQ-1500 printers or compatibles.

Printer Boss™ $59.95. With Letter Quality or Sideline™ options $99.95. With both $139.95. **Demo disk** $10.00 credited to order. VISA, MC, or send check. Free info. Dealers welcome, sales kit available.

YES! PLEASE SEND PRINTER BOSS TODAY!

CONFIGURATION:
( ) PRINTER BOSS $59.95
( ) WITH SIDELINE OPTION $99.90
( ) DEMO DISK $10.00
( ) WITH LETTERBOSS OPTION $99.90
( ) WITH BOTH OPTIONS $139.85

ADD $2.00 SHIPPING ALL ORDERS. CONNECTICUT RESIDENTS ADD 7.5%. OUTSIDE USA AND CANADA ADD $15.00. COD ADD $2.00. PURCHASE ORDERS ACCEPTED.

PAYMENT: $_____
( ) CHECK ENCLOSED
( ) MONEY ORDER ENCLOSED
( ) COD
( ) VISA CARD ( ) MASTERCARD
CARD #: _____-_____-_____-_____
EXPIRES: _____
SIGNATURE: _____
DATE: _____

NAME: _____
COMPANY: _____
ADDRESS: _____
CITY/STATE/ZIP: _____
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Printer Boss™

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CIRCLE NO. 11 ON READER SERVICE CARD

EPSON AT WORK

ports and have the computer speak them orally in class, store them for future use, or print them. It also includes the option of pre-programming the 99 most-often-used sentences.

Why the Epson? "The Epson was the first portable on the market," says Ginger Waltosz. "Being lightweight enough to keep on your lap, it also allowed a communication device and a battery pack."

"It's the best thing on the market," Jim says. "If it was too complicated, it wouldn't work. Kids when they see it say 'Wow! Does that work?' They have an immediate sense of respect, and better yet, Peggy has a way to communicate."

— *N.W.*

Ad Exec Catches Up At Home

"I RELY VERY HEAVILY ON MY home computer, the PX-8. It's a super product for me, especially for writing . . . at home where it's quiet and I can collect my thoughts."

That's the opinion of ad executive Bill Peyton. As vice president of marketing services for the DRK Advertising Agency in Boston, Peyton says the secret is Marlow Associates Missing Link software: "Keeping up-to-date with client correspondance, follow up letters, proposals, and ad copy is a cinch."

"Although the display screen (of the PX-8) is small, I can live with that. I used to lug home a ComPaq, but that weighed a ton and was highly impractical," explains Peyton.

Now he can do his homework in rough on the PX-8 and print it out at the office on a letter-quality printer. The Missing Link allows users to transfer files via the serial port from the PX-8 to a desktop (in this case, the IBM-XT) computer for hard-disk copies.

The XT at the office was always tied up, says Peyton. With the PX-8 and the Missing Link, he's not wasting time standing in line.

— *N.L.*

But Can It Do Manicures?

THE HX-20 HAS EVEN ENTERED the beauty industry ... and it's not just another pretty face. A coiffure salon management program by Salon Cynergistics of Boston has recently been released after eight years of work.

"When Epson came along, its portability and simplicity was the key," says Mrs. Robert Howard of Salon Cynergistics. "Hairdressers are creative by nature and don't want to be bothered with complicated computer programs." And this program promises just that.

For an estimated $3000, salon owners will get a computer, printer, and necessary software. Some of the features include client tracking, payroll, tax reports (both for individual stylists and the salon in general). It'll even throw out a customer's name who's looking rather shaggy around the ears, reminding him or her a haircut is overdue.

— *N.L.*

HARD DISK TIPS FOR THE UNINITIATED

By Larry Hufty

The joy of using a hard disk is becoming more and more prevalent among microcomputer users in light of rapid price decreases for the devices this year.

In January the ComFiler hard-disk drive (CR-1510) was retailing for $2495. Today, it can be obtained for $1750. And that price may be considered high in a few months.

Although there are several hard-disk drives now on the market supporting the Epson QX-10, my experience is with the ComFiler. I prefer it over other drives for several reasons.

First, since it's made by Comrex, a branch of Epson, it's completely QX-10 compatible.

Second, the Comrex ComFiler uses state of the art technology by Winchester, a proven and reliable hard-disk system.

The ComFiler boasts:

- 5.25 Winchester disk;
- QX-10 compatible;
- 10 MB capacity;
- Microprocessor controller; and
- Low power comsumption.

Larry Hufty is a freelance writer in Jacksonville, FL, and an operations manager at Merrill Lynch. He works with microcomputers daily and has had a QX-10 since March 1983.

WHY A HARD DISK DRIVE?

But why, you ask, would anyone want buy on a hard disk?

A hard disk is 10 times faster than a floppy, has 30 times the storage space, and can have both CP/M and TP/M on the same unit with no problems. Table 1 gives you some "hard" facts about hard drives versus floppies.

The ComFiler hard-disk drive comes with a circuit board that goes in any of the five expansion slots in the QX-10. A 4-foot ribbon cable connects the computer to the hard disk. Also included is a comprehensive manual and a disk with the formatting programs and some very useful utilities.

LEAVES FLOPPIES IN DUST

Since the hard disk is rotating at 3600 rpm versus the floppy disks' 300 rpm, access time for the floppy disk can be as much as 10 times longer. This really becomes evident when retrieving a file from the hard disk to the editor in VALDOCS. When I timed that function on my system, it took 18 seconds on the hard drive and 27 seconds on the floppy drive.

Access speed is also apparent when going from one function to another. It took about 5.5 seconds to go from the edit mode to the mail program utilizing the hard disk. It took almost 20 seconds when using the floppy drives.

When accessing CP/M programs, the same holds true. It has taken as long as 18 seconds to access FRIDAY! on the floppy drive. The same program was up and ready to go in 4 seconds on the hard drive.

Just as access time is quicker, so is display time. Although the difference in time can be measured in fractions of seconds, it's impressive to see your program pop on the screen. Even if the total time saved is minimal compared the total time on the computer, once you become accustomed to the quickness of the hard drive, you never want to go back to floppy drives!

READYING FOR THE FAST LANE

As I mentioned, the manual for the ComFiler is quite extensive, but at times tends to be brief. In order to have a hard disk that performs correctly, you must follow the instructions to the letter.

Read through the manual once, then go back and begin the formatting process. Not following the steps precisely could cause some unwelcomed problems later on — like losing your files.

In order to connect the ComFiler to the computer, everything must be turned off. Remove the two screws on the expansion cover located on the left side of the computer, and take off the top panel.

You will find five expansion slot connectors on the motherboard. If this is the first board to be installed, you will also find a shipping bracket that should be removed. After the shipping

bracket is removed, you can place the expansion board in any of the five slots, except for the slot on the extreme left, since the the cover screw plate is in the way. Otherwise, it makes no difference which one you use.

Once the expansion board is in place, reverse the direction in putting everything back together, *except* do not replace the shipping plate. Now refer to your manual on how to format your new hard-disk drive and transfer files.

SAFETY PRECAUTIONS

There are a few items in the manual that, although given strong emphasis, need to be reiterated.

First, and most important, the ComFiler differs from most hard drives because the head settles and rests on the disk surface, where it could damage one of your files.

To alleviate this problem, always run HDSIT.COM prior to turning your computer off. This will run a program moving the heads to "Seek Inside Track."

According to the people at Comrex, one of the purposes of not having the heads auto retract is better overall reliability — less moving parts to go bad or to get out of alignment.

The ComFiler is well built and can stand vibration and minor shocks while it's running. This is due to the mechanics of how a hard disk operates.

The only thing holding the read/write heads away from the disk surface is a cushion of air created by the speed of the disks turning.

A floppy disk operates very similar to a cassette deck, where the heads actually touch the magnetic film.

On the hard disk, the heads "float" on a very thin cushion of air. So thin in fact, that if the actual disk was not contained in a sealed unit, a partical as small as dust, or even the density of cigarette smoke could disrupt operation. But because the disk is fixed, it's able to sustain those minor vibrations and shocks.

Actually, starting and stopping causes more wear on the hard disk than any other function. As the disk stops turning, the read/write heads begin to slowly loose their cushion of air and come into contact with the disk surface. This contact slowly wears the heads and the disk surface.

This is why it's so important to run the HDSIT utility prior to turning off the drive. This will at least keep the read-write heads from landing in any area with data.

POWER PRECAUTIONS

Another important operating procedure is always turn the hard disk on *first* and off *last*. This enables the disk to obtain full operational speed prior to any inputs from the computer.

Let the hard-disk drive warm up at least 30 seconds, preferably 60 seconds before turning on the computer.

When completed for the day, and if you do not plan to keep the hard-disk drive on continuously, turn the computer off first. That ensures the computer doesn't accidently send a signal to the hard disk as you are turning it off.

If the hard disk is turned off first, there would be no assurance that the head was positioned in the right place.

The ComFiler User's Guide recommends the following guidelines:

- If you use the ComFiler every day, then leave it running. It uses less power than a 40-watt light bulb and costs less than 10 cents a day to keep running.
- If you don't expect to use the drive within 36 hours, turn it off.

SPECIFICATION	HARD DRIVE	QX-10 FLOPPY DRIVES
Capacity	10 megabytes, formatted	376K each, formatted
Transfer Rate	5 megabits/second	250K bits/sec
Access Time		
Track to Track	3 msec	15 msec
Average	85 msec	220 msec
Settling Time	15 msec	15msec
Rotational Speed	3600 rpm	300 rpm
Recording Density	9074 bits/inch	5876 bits/inch
Heads	4	2 per drive
Cylinders	306	none
Tracks	1224	40
Power Consumption	35 Watts	9.7 Watts each
Weight	12 pounds	
Hard-disk drive dimensions: 7.5 inches wide x 5.25 inches high x 14.75 deep		

What the manual doesn't talk about is what happens if you leave it on all the time and your area experiences a power loss. In my area of the country, sudden thunderstorms and unexpected power losses happen quite frequently.

If you decide to keep the unit on continuously, I recommend one of two alternatives. The best solution is to have a battery backup device in line with the power to the hard disk and computer (if you decide to leave both on). Although expensive, they are cheap insurance against the loss of the disk due to a head crash.

HEAD-CRASH INSURANCE

Back-up power supplies come in two basic types, the uninterruptable power supply (UPS) and the often misrepresented Stand-By Systems.

Some companies will call their stand-by system an uninterruptable power supply, but in the true sense of the system, they are not. A uninterruptable power supply takes direct current from a battery supply and converts it to AC current.

This type of system is extremely expensive and can easily cost you as much as your computer.

The other type of system, and the less expensive route, is a Stand-By System. With this type of system, you plug your computer and hard-disk drive into the power supply. The computer then runs off the regular line current until such time as a power failure happens. Once this happens, the switching mechanism built into the stand-by system switches the power source to the stand-by power source.

As with the uninterruptable power supply, battery power is converted from DC to AC to operate the computer. This switching should be done in 10 to 15 milliseconds.

When looking for a Stand-By System, keep in mind the faster the conversion from line current to battery power, the better.

Next, determine what you want to plug into the unit and add up the wattage required to run all systems at the same time. Find yourself a system that is greater in wattage than the total of what you need. It never hurts to have a little too much power!

> "What the manual doesn't talk about is what happens if you leave [the hard drive] on all the time and your area experiences a power loss."

CP/M AND TPM HARMONY

One of the major advantages to using a hard-disk drive is CP/M and TPM programs will live in peace side-by-side.

Once you have set up the hard-disk drive, make yourself two bootable disks. One will be used to access Valdocs (actually any TPM driven program) and the other for accessing CP/M programs.

Also look at how long you want the power supply to last. Most systems will only provide about 10 minutes of emergency power. Which should be plenty of time to shut down the system or for the power to come back on line. A good power supply can be had for about $300. Remember, it may seem expensive but not nearly as expensive as a ruined hard-disk drive unit.

If you are insistant on keeping your hard-disk drive on continuously, yet do not want to go to the expense of an uninterruptable power supply or Stand-By System, at least install a switching device that will not restart once power has been lost.

This device will power the computer and hard drive when some sort of reset switch has been set. Although not as reliable as a Stand-By System, it will at least provide minimum protection, and a little protection is better than no protection at all.

When using the TPM boot disk, the hard drive becomes drive "A0:" and drive "B0:", while the floppy drives in the computer become drives "C0:" and "D0:".

When using CP/M, the floppy drives remain "A:" and "B:" and the hard disk becomes "C:" and "D:", but only if you enter the SETUP.COM program and let the operating system know drives "C:" and "D:" are hard-disk drives.

Notice drives "C0:" and "D0:" in TPM. Actually, the "0" is the user area. With the two hard drive sections you can put a whole lot of programs on each drive. In order to help keep the area clean, you can sector each drive.

User area names are made of the drive designation letter followed by a number, for example: B4:.

The number can be from 0 to 255, which means you can create up to 256 directories on each drive.

Programs kept in user area 0 can be accessed from any other user area on that disk. For example, I keep a directory program called "NI.COM" on both "A0:" and "B0:". If I am working in "A50:" and want a directory, all I need to do is type NI.

The computer will first look for NI in user area "A50:", drop down to "A0:", and give me a directory of user area "A50:" only.

When you place the VALDOCS files on the hard drive, they will end up on "A0:", with all files being written on "B0:". And if you also place your CP/M files on "A0:", the directory becomes crowded.

One of the new areas that will pop up in the VALDOCS program SETUP.SYS is a section that lets you pick the user area where VALDOCS and your data will reside.

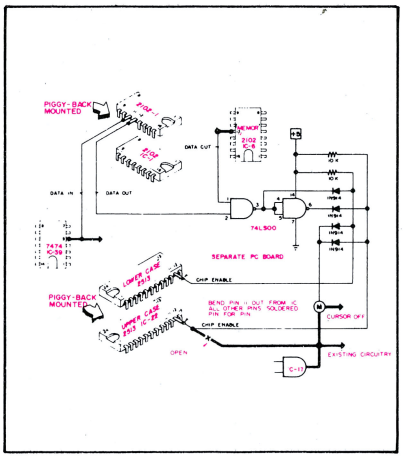
I recommend you exit to TPM and ZPIP all VALDOCS files, with the exception of INITIAL.INI, to another user area, such as "A5:".

Now go to user area "A5:". Type SETUP. Hit return. Keep the program disk on A but change the user area to 5. Also keep the data disk on B, but change the user area to 5.

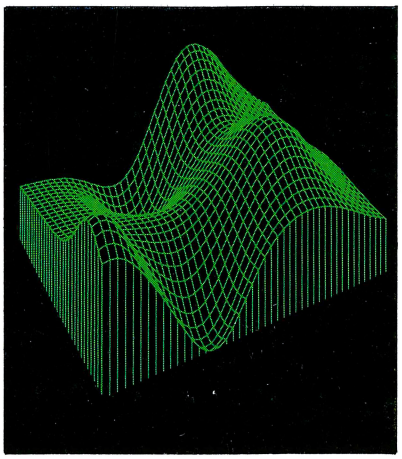
Go back to TPM and user area "A0:". Rename INITIAL.INI to INITIAL.SYS by typing: REN INITIAL.SYS=INITIAL.INI.

PERFECT ILLUSTRATIONS by QPLOTTER

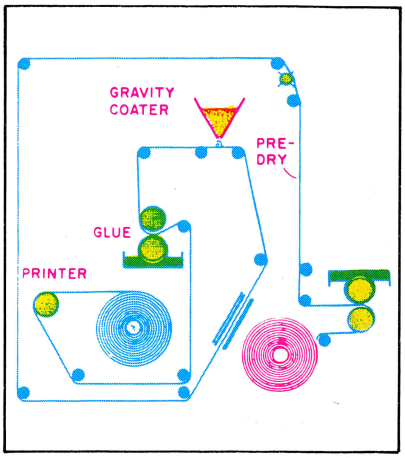
Electrical Circuit



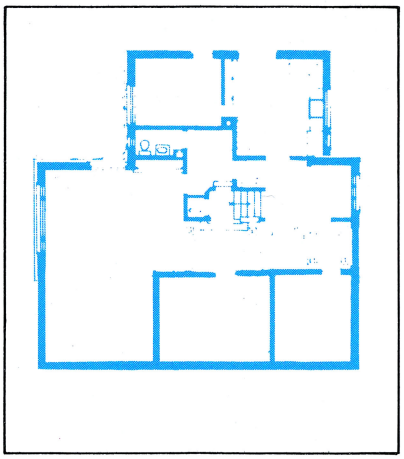
Surface Drawing



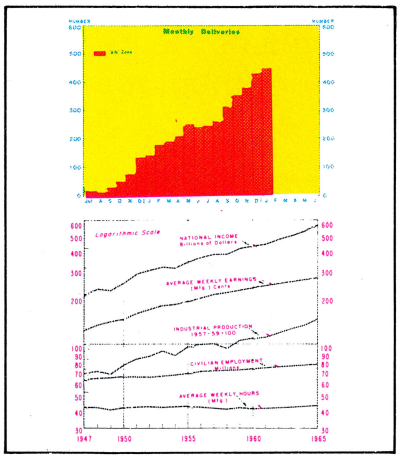
Documentation Illustrations



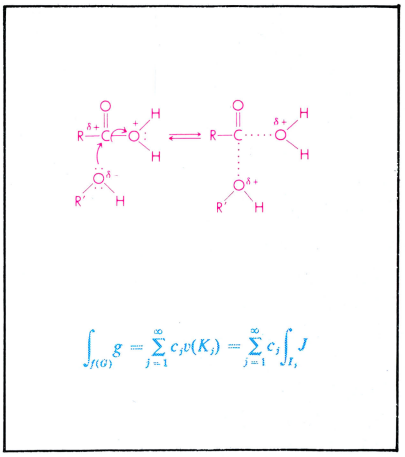
Architectural



Line/Bar Charts



Scientific/Mathematical



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Now when you boot up the TPM disk, you will not automatically go to VALDOCS. To go to VALDOCS from any user area on the A drive just type INITIAL. You will immediately be booted into VALDOCS. By doing this, you free up a lot of space on the "A0:" drive, keeping it uncluttered.

CP/M AND TPM III AT ODDS

The ComFiler User's Guide recommends accessing CP/M programs via TPM. This can be accomplished before going into VALDOCS'S "Menu of Applications" (if you have moved VALDOCS to a user area other that A0) or by starting off in TPM.

Unfortunately, with the advent of TPM III, supplied with the VALDOCS 2.0, many CP/M programs that originally ran with no problems are plagued with them now.

For example, I used to run Peachcalc extensively with TPM II, but with TPM III, Peachcalc and many other business application programs will not run correctly. Peachcalc and the Peachtext 5000 series, for example, will not clear the screen when changing modes. And with Peachcalc, once a data base is loaded, everything is in reverse video. Consequently, I recommend that CP/M programs be run with CP/M unless you test them extensively under TPM first.

TPM DOES IT BETTER

Unlike TPM's use of user areas, CP/M does not do it quite as well. Although CP/M allows you to define user areas by typing USER 5, for example, moving around is difficult. This requires all CP/M programs be put on drive "C:". (Remember, CP/M designates the hard drives as "C:" and "D:").

Worse yet, all data ends up on "D:" and becomes crowded very quickly! If you have been using CP/M-B's INDEXER program, you may have noticed it gives you the ability to copy files to different user areas. But until recently, getting to those user areas has been difficult.

A little known public domain utility program (it has been known to sell for as much as $90) called ZCPR2 has been modified and installed on Epson CP/M to let you move around in user areas much the same way as TPM works.

And it does it better than TPM. In TPM, once you have logged into a particular user area, the prompt only shows the drive, not the drive and user area. For example, you might be working in "A6:" but the screen will only show "A>". With the ZCPR2 overlay, if you are working in "A6:", the screen will show "A6>".

One advantage to this would be to place MBASIC on drive "C0:". MBASIC can then be accessed from any program residing on the C drive, no matter what user area being used. I have, for example, no working programs on "C0:". Instead, I have Peachtext 5000 on "C1:", WordStar on "C2:", FRIDAY! on "C3:", an so forth.

"Unfortunately, . . . many CP/M programs that originally ran with no problems are plagued with them now."

When saving data, CP/M programs do not allow for user areas, yet with ZCPR2, it's of no importance. For example, if I am using FRIDAY! which resides on "C2:" and want to save my data on "D2:", all I need to do is to designate my data drive as "D:". ZCPR2 will automatically save my data on "D2:".

Except for user area 0, TPM and CP/M files will not mingle with one another. This allows you to save a CP/M file on "C5:" for example, and not worry about a TPM file being there also, even if you have used user area 5 under TPM and CP/M. The ZCPR2 utility has been set up to accomodate five drives: 2 floppies (Drives A and B), RAM drive (drive C), and the two hard-disk drives (drives D and E.)

Other improvements with ZCPR2 are added commands such as, JUMP, CALL (both used in programming), automatic paging when using TYPE, and ERA now prints out the names of the files it's erasing. The DIR command shows system files as well, a LIST function sends output to the LST device, and most important, ZCPR2 has the ability to "look" for files in all drives (no more logging back and forth).

Since ZCPR2 is a public domain program, it could possibly have some bugs in it, although I have yet to find any.

BEST FOR BUSINESS

Buying a hard-disk drive is a major investment. If you are a casual user of the Epson QX-10, and rarely change programs more than once during a session, or if your data requirements are minimal, a hard-disk drive is just "nice to have." But if you are a business, or do a lot of computing, be it for hobby or money, a hard-disk drive is a Godsend.

For a business, using ZCPR2 and a hard-disk drive, time is cut substantially. Your word-processing program can be on one area, your inventory on another, your salary report on another. No more pulling floppy diskettes in and out, no more waiting forever while a program loads.

Ten million bytes of information is a bunch — probably well worth the expense on a long term basis.

I have been using the Comrex ComFiler Hard Disk 1510 for some time now and have never had a problem. It's an extremely capable machine that, like the QX-10, is built to last. ●

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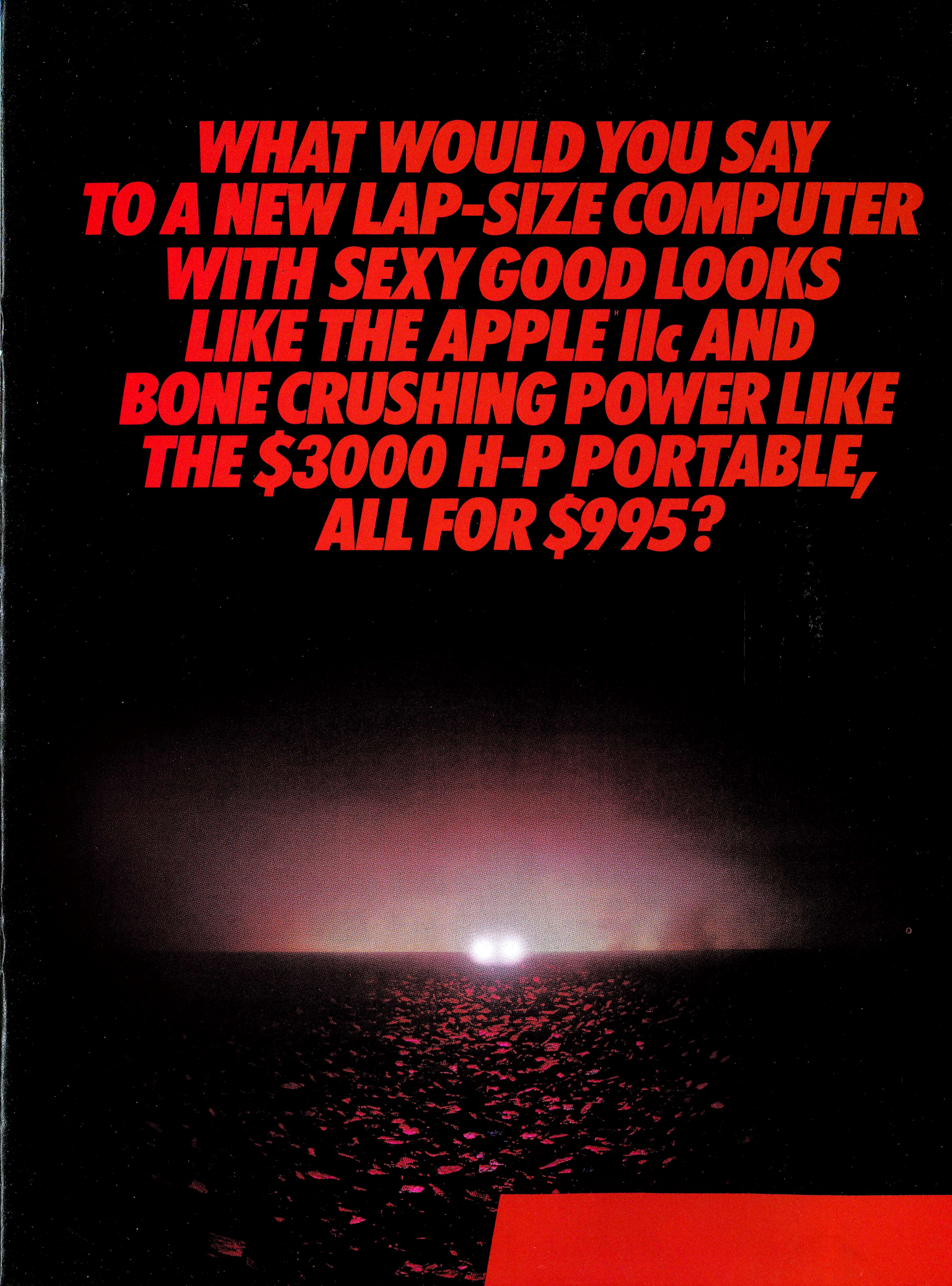

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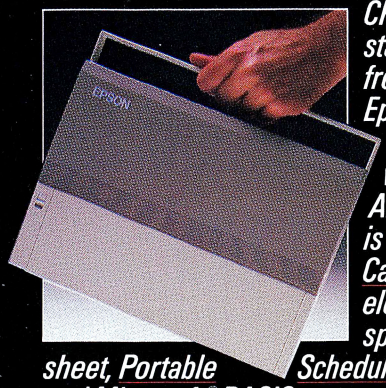

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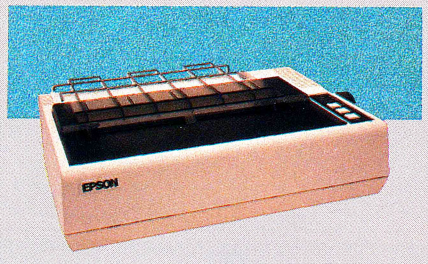
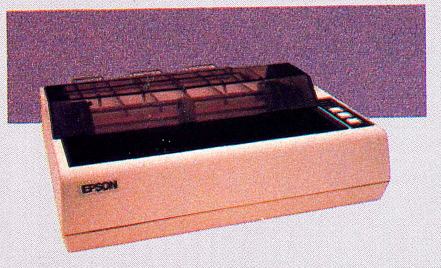
G E N E V A

Epson Printers For Every Task

SOUPED-UP CHEVROLET

The RX-80 is the Chevy of Epson, but has some of the chrome and extras found on more expensive printers made by other companies. It has 128 different user-selectable type styles; six dot graphics modes; programmable forms control and a special half-speed Quiet Mode to keep noise down. Those add ons supplement standard features found on all Epson printers — good print quality, bidirectional printing, and disposable print heads.





ANY FEED WILL DO

Whether a user likes roll, tractor-feed, or sheet feed, the RX-80 F/T can handle it. The F/T stands for "friction/tractor paper feed" because on the RX-80 F/T you get both. The F/T has all the features you get with RX-80, including speed (100 characters per second) and graphics. Both printers have six user-selectable graphics modes, with six different densities that can even be mixed on the same line. And both printers — like all Epson printers — are virtually plug-compatible with virtually every microcomputer on the market today.

DESIGN YOUR OWN FONTS

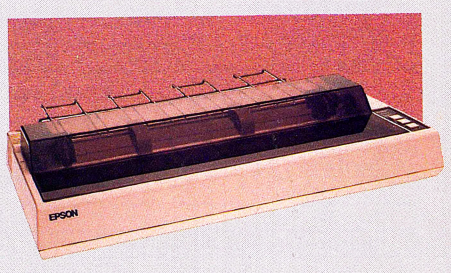
If a user isn't satisfied with the font styles in the FX-80, he or she can change them. The "integral RAM" in the FX-80 lets a user create a character set of up to 256 characters or symbols and add them to the printer's existing array of 128 type styles. The FX-80 also sports a 2K buffer, allowing a user to get back to computing while the printer continues printing a document. The FX-80 has a 9-by-9 matrix, print speed of 160 cps, and takes pin-feed, roll, or single sheet paper.

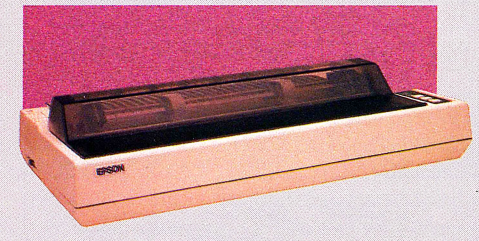
WONDERFUL WORLD OF COLOR

For color and graphics communications, Epson offers the seven-color JX-80. With a four-color ribbon, JX-80 gives a user seven colors and high-resolution bit-image graphics to clarify pie charts and bar graphs, architectural shematics, topographic maps, organizational charts — any graphhic where the color can help a user see a conpt more clearly. SelecType, another JX-80 feature, allows a user to select typefaces without using computer commands. In addition to colors, the JX-80 prints correspondence quality text at 160 cps.

WIDE BODY GRABS SPREADSHEETS

For users with "wide body" needs, Epson has its RX-100. This printer's ability to print 136 columns across a page addresses the needs of users working with spreadsheets or general ledgers. Both friction-feed and a removable tractor bar for pin-feed lets users print on forms from 4 to 15.5 inches wide. Speed on the RX-100 is 100 cps. Graphics on this printer allow a user to place a dot at any of 51,840 positions inside a square inch — so a user gets blacker blacks and better definition all the way around.



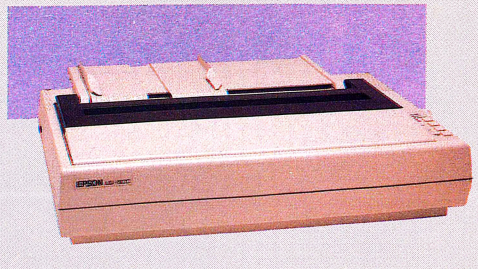


TAKING CARE OF BUSINESS

Epson has dubbed its FX-100 "the business printer" because, like the RX-100, it prints 136 columns on a page, but is 60 percent faster. Graphics come in seven bit-image modes, including a 1 to 1 plotter and a 240 dots-per-inch quadruple density mode. To ease the problems of filling in preprinted forms, the FX-100 has programmable line-feed capability to 1/216th of an inch and horizontal and vertical tabs.

CADILLAC OF THE LINE

Epson's Cadillac is its LQ-1500. This printer uses a 24-pin printhead to produce letter-quality type Epson claims is "virtually indistinguishable from an office typewriter" at a speed almost four times that of an average daisywheel printer. In draft mode, the LQ-1500 is a scorching 200 cps. ●



Feature	RX-80	RX-80 F/T	FX-80	JX-80	RX-100	FX-100	LQ-1500
Speed:							
100 CPS	■	■			■		
160 CPS			■	■		■	
67 CPS Letter Quality							■
200 CPS Draft							■
Matrix							
9 x 9	■	■	■	■	■	■	
15 x 17							■
37 x 17							■
Bidirectional	■	■	■	■	■	■	■
Logic Seeking	■	■	■	■	■	■	■
Disposable Print Head	■	■	■	■	■	■	
Integral 2K RAM Buffer			■	■		■	■
Quiet Mode	■	■	■	■	■	■	■
7-Color Printing				■			
Paper Handling:							
Tractor Only	■						
Friction/Tractor		■	■	■	■	■	*
Reverse Paper Feed			■	■			
Programmable							
Line Spacing	■	■	■	■	■	■	■
Page Length	■	■	■	■	■	■	■
Column Width	■	■	■	■	■	■	■
Skip Over Perf	■	■	■	■	■	■	■
Character Fonts							
96 Standard ASCII	■	■	■	■	■	■	■
User-creatable characters or symbols			■	■		■	■
User-selectable typestyles, including:							
Elite	■	■	■	■	■	■	■
Pica	■	■	■	■	■	■	■
Condensed	■	■	■	■	■	■	■
Expanded	■	■	■	■	■	■	■
Doublestrike	■	■	■	■	■	■	■
Emphasized	■	■	■	■	■	■	■
Underline	■	■	■	■	■	■	■
Sub/Superscript	■	■	■	■	■	■	■
Italic	■	■	■	■	■	■	■
Proportional			■	■		■	■
International Character Sets	■	■	■	■	■	■	■
Graphic Modes (Dots Per Inch)							
60 DPI	■	■	■	■	■	■	■
72 DPI			■	■		■	
80 DPI	■	■	■	■	■	■	■
90 DPI	■	■	■	■	■	■	■
120 DPI	■	■	■	■	■	■	■
180 DPI							■
240 DPI	■	■	■	■	■	■	■
Interfaces							
Parallel (Std.)	■	■	■	■	■	■	**
RS-232C, IEEE488 (optional)	■	■	■	■	■	■	■
Print Head Reliability							
100 million characters	■	■	■	■	■	■	■
MCBF (Mean Cycles Between Failures)							
5 million lines	■	■	■	■	■	■	■
Black Ribbon Life							
3 million characters	■	■	■	■	■	■	■
1-Year Warranty	■	■	■	■	■	■	■
Extended Warranty Available	■	■	■	■	■	■	■

*Tractor feed and cut sheet feeders optional.
**Optional.

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QX-10 FROM THE BEGINNING TO VALDOCS 2.0

By Jim Hansen

In April 1983, I reviewed the QX-10, a pre-release version of VALDOCS, and the FX-80 printer, in a three part cover article for the April edition of *Microcomputing* magazine.

In that review I gave the QX-10 excellent marks for its overall design. The keyboard and screen display were singled out for exceptional comment.

The QX-10 is probably Japan's most successful personal computer, and coupled with the interest it and VALDOCS 2.0 has created (the original review, reprinted for Epson, is still generating mail to the author), it is fitting that we take another look at what has happened to the computer, its software, and and how Epson is coping with the 16-bit computer competition.

Can this general-purpose, Z80A-based imported computer survive the 16-bit personal computer onslaught?

Has the American software base written exclusively for Epson lived up to its claims?

After using a QX-10 for nearly two years, is it still the computer described in the original review?

Jim Hansen is a freelance writer and photographer living in New Boston, NH, and design assistant to the president of Rising Star Industries. He is also author of The Epson QX-10 User's Guide *published by Scott, Foresman and Company of Glenview, IL.*

COOK'S TOUR OF QX-10

The QX-10 is a Z80A-based computer system built in three units: a detachable keyboard, an electronics case, and a detached monitor.

Internally, it is equipped with 256,000 bytes (256K) of program memory; 128K of video display memory; two double-density, double-sided disk drives, giving about 380K of storage each; a serial RS-232C interface; and a Centronics-compatible printer port.

The QX-10 monitor features a matted screen with a green phosphor. It normally displays 25 lines of 80 characters each (up to 132 characters per line can be shown when using one of the "compressed" character fonts), and has a graphics resolution of 640 dots by 400 lines, double that of the IBM PC.

The HASCI keyboard features 108 keys.

Two versions of the QX-10 were initially introduced. The VALDOCS version (described above) was priced at $2995 including CP/M, Microsoft Basic Release 5, and the newly introduced VALDOCS integrated software operating environment. A reduced price CP/M version of the QX-10 was also available with only 64K of memory and an ASCII keyboard; this version was supplied with CP/M and Basic, but not the VALDOCS operating environment.

My original comments about the QX-10 hardware were nearly all positive. I remarked the computer was "superbly designed", that the keyboard and screen were "without peer," and the computer should provide "years of convenient, pleasant service."

Negative comments noted the lack of a dimple on the "5" key in the numeric keypad, and the vertical cursor movements did not automatically repeat. Happily, both of those "glaring" deficiencies were corrected; the new HASCI-2 keyboard has the dimple, and vertical cursor controls repeat when the control key is depressed with them.

MINOR CHANGES SINCE INTRO

The CP/M version of the QX-10 has been discontinued in the United States, although it is the mainstay of the Epson marketing effort in Europe, where VALDOCS, until this spring, had not been sold. Rumors making the rounds indicate that prior to the discontinuation of the CP/M computer, VALDOCS versions of the QX-10 were outselling it by a factor of greater than 10 to one.

That, perhaps, speaks somewhat highly of the market success of the VALDOCS software which requires the full QX-10 memory capacity to operate.

Except for manufacturing updates internal to the QX-10, few apparent changes have been introduced over the last year. Probably the most noticable change was in the case molding around the reset key. The newer QX-10 cases protect the hidden button to the point where it is hard to depress even with a pencil.

The HASCI-2 keyboard, released about the middle of this year, replaced the original HASCI version. This keyboard has two minor layout improvements over the original HASCI version.

An "edit" key was added in the applications section, and a numeric sign inversion key was placed in the calculator keypad. The edit key allows direct selection of the VALDOCS 2 editor. (It is non-functional on VALDOCS versions 1.14 through 1.19.)

The HASCI-2 keyboard is now standard with new QX-10 computers, but can be purchased ($250) separately by users desiring to replace the original version. (Most dealers, is seems, are not aware of this keyboard. Contact Epson directly, if necessary, for further information.)

Physically, the HASIC-2 keyboard is thinner and lighter than the original keyboard. The keys have a wider top surface and exhibit a slightly heavier "feel." I personally have no preference for either keyboard and find both very "typeable". Some users claim they can type faster with the HASCI-2 version, and others prefer the narrower profile keycaps of the original because they tend to hit double keys on the HASCI-2 keyboard.

NEW HARDWARE

In spite of published specifications for the input-output (I/O) interface section of the QX-10 (see the QX-10 Technical Manual), not many option cards for this computer have surfaced during the last year. In fact, all of the cards mentioned below have come on the market since January of 1984. The following list of hardware accessories for the QX-10 is not complete, but does show that several organizations are now independently developing products for the computer.

INTERNAL MODEM

Comrex International of Torrance, CA, began shipments of the CR-103 direct connect 300 baud modem card ($179) this spring. The CR-103 card was recently offered by Epson as a part of a QX-10 package promotional campaign earlier this year. All indications are the card is reliable in use, especially when used with the VALDOCS Mail system.

Installation of the CR-103 is easy, just plug it into any slot in your QX-10 expansion area. The cable normally going to your telephone is plugged into either of the two modular telephone jacks on the back of the CR-103, and the extension cable (provided with the CR-103) goes from the other jack to your telephone. A simple five minute installation. The CR-103 can dial with either tone or pulse dialing.

An internal loudspeaker monitors the phone line until a connection is made, then is automatically muted, in typical modem fashion. The sound is a little muffled by the QX-10 case, as would be expected, but is adequate for the purpose.

Both CP/M MODEM7-like software (supplied on a disk that comes with the CR-103) and VALDOCS electronic mail software provide full, integrated support for the CR-103. The VALDOCS MAIL subsystem is more refined, comprehensive and automatic than the CP/M software, but both offer "talk" and data transfer modes for use with bulletin boards and other computer systems. The Christenson error-correcting communications protocol is used for file transfer.

The CR-103 is a medium performance direct-connect modem. It works well for coast-to-coast communication with both bulletin boards and other QX-10's using the latest versions of VALDOCS 1.18 or 1.19 MAIL.

Telecommunications over the phone network can provide both pleasure and frustration. I have found no modem seems to be able to work reliably over MCI or SPRINT (at least not from my home in New Hampshire). Other similar "cheap" telephone services often have the same problem. (Could it be that Ma Bell gives good lines for the money they charge?) Users of the CR-103 and other low cost modems will be more sensitive to poor telephone connections than higher priced modems, but rest assured that no modem can escape a bad telephone line.

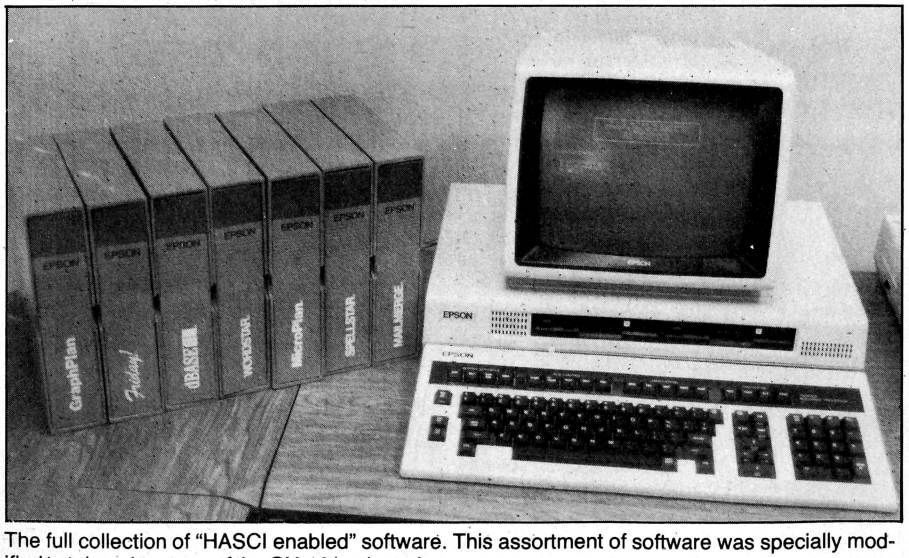


Photo by Jim Hansen

The full collection of "HASCI enabled" software. This assortment of software was specially modified to take advantage of the QX-10 keyboard.

Photo by Jim Hansen

The HASCI-2 keyboard. Except for the edit key added to the applications area and the numeric sign inversion key to the calculator keypad, the layout is identical to the orginal keyboard.

If you have bad phone service, you should try to test any modem, including the CR-103, before you buy, but if your phone lines are good or even average, the CR-103 will provide good service.

HARD DISKS

At present there are two sources of hard disks compatible with the QX-10 computer. COMREX markets the ComFiler, a 10 megabyte hard disk ($2295) for the QX-10. The ComFiler is fully supported by both Epson releases of QX-10 CP/M and all versions of VALDOCS software.

This drive is attractivly packaged and matches the QX-10. A well-written manual guides installation and formatting (which takes some time). This hard disk system is reliable, and radically speeds disk access. Speaking from experience, yes, it is possible to fill up a 10 megabyte disk! My observation is hard-disk storage capacities are nice, but the prime benefit is speed of access.

One of the prime user responsibilities with a hard disk is to ensure you have backup copies of all important files for recovery after the eventual failure of the hard disk unit itself. Backing up files from a hard disk is such a pain it is often put off past prudence, inviting disaster. Such disaster will strike when least expected or desired. (VALDOCS 2.0 provides automatic hard-to-floppy disk backup, relieving a lot of that headache, but more on that later).

Quality Computer Services of Metuchen, NJ makes a complete line of hard-disk systems for the QX-10. Various capacities are available through 84 megabytes ($7999). I have been using the model DSK-63 (20 megabytes, $2799) for over a year without a hitch. QCS also offers the DSK-63 with a 5 megabyte removable cartridge ($4099; cartridges are $139 each). The removable cartridge significantly reduces the time it takes to back up important work, and is especially convenient when the amount of work to be backed up is greater than can be held on one or two floppies.

Quality Computer Services, who has been in the hard disk business for nearly four years, makes a reliable product which, by the byte, is very cost competitive. Most of the VALDOCS software was written on QX-10 systems equipped with QCS hard disks, assuring absolute compatibility. Quality Computer Service's manuals are technically intimidating, and installation software is exceptionally unfriendly. They definately not written for civilians.

(Even unwary technocrats have lost all their data stored on these disks because QCS's utilities have blindly commenced operation without first checking the disk or verifying the operation with the user. Fortunately, once a QCS disk is formatted, you will probably never use their software again.)

Although the installation of a hard disk in the QX-10 amounts to nothing more than plugging in an option card, new computer users should probably have their dealers install, format, and setup QCS systems before taking them home.

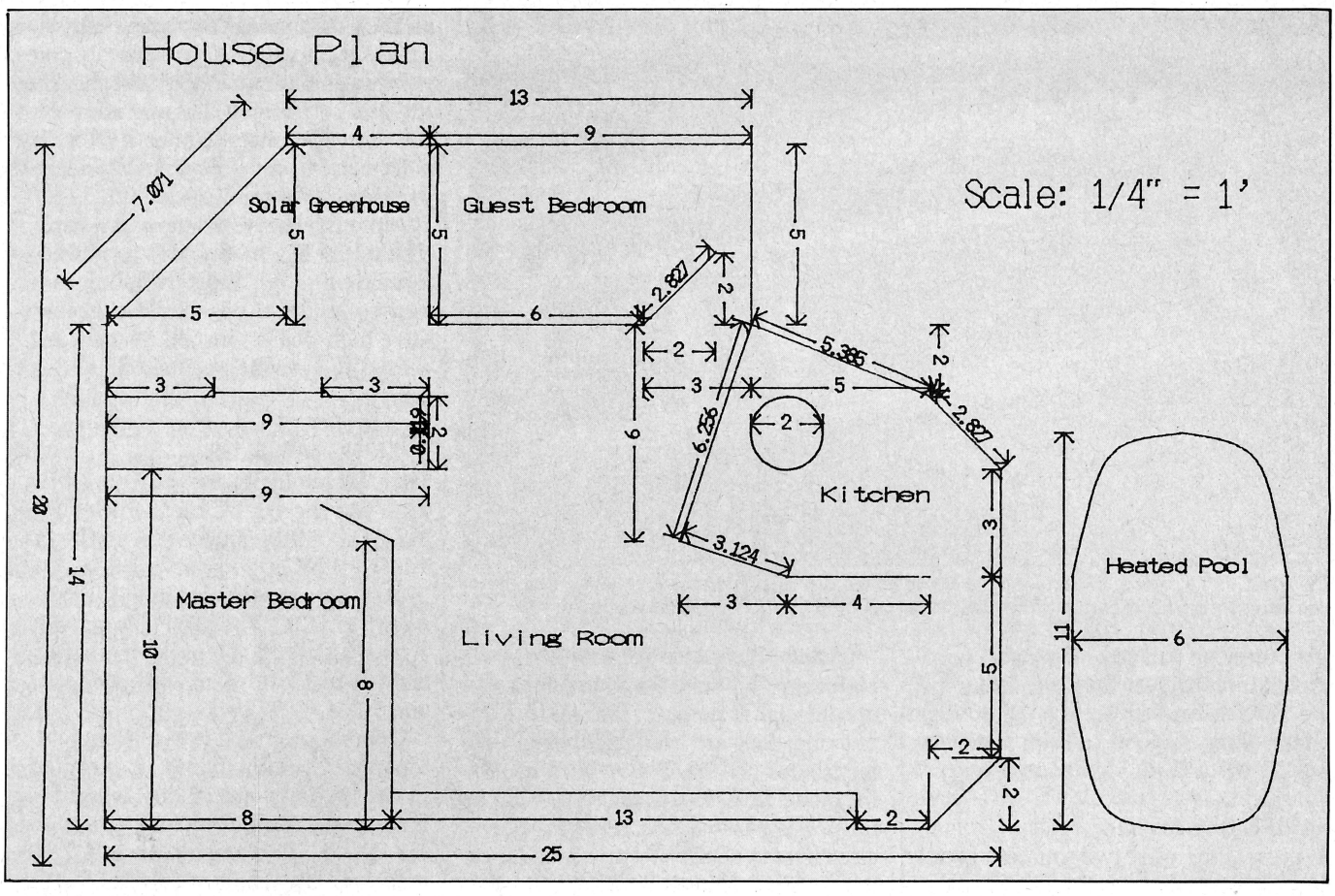
TALKING BIG BLUE

Titan Technologies Inc. of Ann Arbor, MI offers the QX-PC card which allows MS-DOS of IBM fame to run on the QX-10. This $795 option card includes 192K of memory, expandable in 64K increments to 512K. The QX-PC is actually a card with a "piggy-back" memory array, and includes an 8088 processor and ROM.

Operation of the system is straightforward. Once the QX-PC is installed in the QX-10, a special disk is used to boot up the 8088, completely disabling the QX-10 Z80A processor and QX-10 memory. The memory on the QX-PC card can be used as a RAM disk when normal Z80A/QX-10 operation is selected.

Many (but not all) of the popular 8088 software packages running under MS-DOS — such as Lotus 1-2-3, Multiplan and other programs not using PC graphics — can be run with the QX-PC. Unfortunately, Microsoft Basic, as applied in IBM-land, cannot be run with the QX-PC since much of the Basic code itself is in IBM ROMs, and because of obvious hardware differences between the Epson and IBM graphics screens. As of early summer, no version of Microsoft Basic was claimed to run with this option card.

The QX-PC card has not been promoted or sold heavily, and the word is an updated version is in the works. If you are interested in IBM compatibility, you should check with Titan before buying. The main reason most people would need this card would be to gain access to some of the newer 16-bit software, not available or practical when using CP/M.



A plot of a house plan drawn in less than 30 minutes time using Valdraw. This CAD system makes it easy to draw architectural images. At present it can drive only the four-color Epson plotter and the ComScriber ploter from Comrex. This picture was drawn by the ComScriber.

One example of 16-bit software made impractical when translated to the 8-bit world is Multiplan. Available in both CP/M and MS-DOS versions, this spreadsheet provides only about 12K of user memory when run on CP/M-based computers and is thus not practical for most serious applications.

SemiDisk is a memory card marketed by SemiDisk Systems of Beaverton, OR, that emulates a 512K floppy disk ($995). In addition to the blazing speed this hardware adds to the QX-10, a printer spooler is included. (A spooler accepts entire files to be processed, then returns control to the main computer while the processing takes place.)

The speed improvement is anywhere between five and 10 times quicker than when using floppy disks. For example, when using the PeachText mailing list manager, a sort of about 1500 names takes over an hour when using a ComFiler hard disk. Using SemiDisk it takes about 10 minutes.

INTERNAL SPEECH SYNTHESIZER

Universal Computer Products of Irvine, CA, manufactures the QXSM-1 speech synthesizer ($295) option card for the QX-10. This card requires only a loudspeaker to be fully functional. Based on an Echo technology speech synthesizer module, it can create speech and sound effects simultaneously without interference.

This synthesizer can be driven directly from Basic or system-level software.

I had a chance to use a QXSM-1 and compare it to the Votrax Personal Speech System and Type 'N' Talk units. I found the Votrax synthesizers easier to understand.

While both systems sound like Robby the Robot with a cold, the way Echo handles speech timing make some syllables short, others long. The result is irregular speech, shifting speeds in the middle of words. I agree with several others who have heard this synthesizer and found it difficult to understand at times. But once your ear has been trained to this synthesizer, apparent intelligibilty should increase.

The QXSM-1's text to speech accuracy is around 90 percent for normal speech, about the same as the Votrax Personal Speech System. It can be programmed for both inflection and pitch. The QXSM-1 excels in combined speech and sound effects. Once intelligibilty has been improved (it is being worked at this writing), it will make a good choice for use with the QX-10.

OPTIONS FROM EPSON

Epson Japan manufactures other cards for the QX-10 available internationally that have not been marketed in the United States:

- A serial interface card which provides two additional serial RS-232C ports.

•A two channel fiber-optic interface card for use in networks or industrial applications.

•An IEEE interface card to interconnect the QX-10 to test, measuring and scientific equipment.

•The MF-FONT card which, in conjunction with MF-CP/M and MF-Basic, provides additional fonts for display and printing. (MF stands for "MULTI-FONT". The MF versions of CP/M and Basic are distributed only overseas, although MF-CP/M is available in Canada.)

•A light pen for the QX-10. This plugs directly into the light pen port and is available in Canada ($779 Canadian).

COLOR ON THE QX-10

A color option for the QX-10 was introduced in Canada in March, 1984, and hopefully will be made available in the United States by year's end. The option consists of a new video controller (which replaces the normal monochrome controller riding piggy-back on the QX-10 main electronics card) and a special high resolution RGB color monitor.

These options are expensive: the Canadian price is $1279 for the color video-controller and $1319 for the color monitor. However, QX-10 color resolution is the same 640-by-400-pixel resolution as regular QX-10 systems, making the color images and quality state of the art in personal computers today.

Software support for the color QX-10 system is provided by both VALDOCS 1.8 and 2.0 releases, RSI Basic, Valdraw, Valpaint (described later), and MF-CP/M, available in Canada at $249 (Canadian).

The color QX-10 electronics case and keyboard are, of course, unchanged, but the monitor is a little larger than the existing monochrome unit. The colors displayed brilliant and well saturated. Display speed is somewhat slower than the monochrome QX-10 screen because there are no "hard" character fonts in a color system — everything is displayed as a graphics image.

The QX-10 color controller provides 128K of memory for each of the primary colors (red, blue and green), triple that of a monochrom QX-10. Data displayed in a primary color will go on the screen faster because other colors are made by writing into more than one color memory to get a color mix, slowing things down a little.

OLDER BUT STILL PEERLESS

After nearly two years of heavy text processing (including a book, several major technical manuals, and numerous magazine articles), I can report the QX-10 keyboard and screen are still *without peer*. I am not aware of any other computer or computer terminal that will allow a person to use it for 12 hours or more at a time (as I have on occasion) without becoming half blind in the process.

I can also report the reliability of the QX-10 in my case has been flawless. I have not experienced a single hardware difficulty (except those caused by the somewhat unpredictable reliability of power in my hometown). I have not lost a single character of text out of the several million typed into my system. And VALDOCS 2.0 now prevents even these types of losses.

CP/M AND TPM

The QX-10, being based on the Z80A, runs CP/M and Rising Star's TPM operating system. "Upwardly" compatible from CP/M, TPM can run both CP/M 1.4 and 2.2 software. The Rising Star operating system is supplied (and required) for use with the VALDOCS.

The QX-10 was supplied by Epson with CP/M A2.21 until March of 1984 when version B2.20 was released.

Very briefly, the B release uses two banks of 64K memory (unused in CP/M A2.21) to provide a 112K ramdisk (drive M), provides an automatic screen dump (activated by typing control-print), and considerably speeds disk access and program loading. A utility supplied with the B release allows the QX-10 to read and write several disk formats (listed in table 1). Other user conveniences, too numerous to mention here, are also provided. Unfortunately for CP/M B users, only the ComFiler hard disk can be used with CP/M B because Epson provided no support for the QCS drives.

The original TPM-II operating system supplied with VALDOCS 1.14 through 1.19 operating environments has evolved into TPM-III for use with VALDOCS versions 2.0 and above. Major file handling speed improvements, bank switching, and hard disk support for both ComFiler and QCS hard disks has been incorporated.

Format	Tracks	Sectors/Track	Bytes/Sector	System Tracks
QX-10	40	10	512	2
QX-10	40	16	256	2
MF-CPM	40	16	256	4
IBMS (CPM-86)	40	9	512	2
IBMD (CPM-86)	40	8	512	2

Table 1. Disk formats provided by Epson's CP/M B2.20 release. Two other similar utility programs (ALTDISK from Rising Star and UNIFORM from Micro Solutions) can be used to read and write data from more than 20 different computer systems. Operation of all of these programs is simple: You select the disk format desired, and until it is changed, data can be read and written as if the disk came from another QX-10.

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Title	Use	List Price
Wordstar	Text Processing	$495
GraphPlan	Graphics Spreadsheet	$295
MicroPlan	Financial Modeling	$495
Friday!	Electronic Filing System	$295
dBASE II	Data Base Management	$700
Spellstar	Spelling Checker	$250
Mailmerge	Mailing List Manager	$250

Table 2. A list of QX-10 software customized by Epson for the QX-10. These versions require Epson's CP/M B2.20 (or later) operating system.

TPM-III provides many of the same functions of CP/M 3.0, but is considerably more powerful on the QX-10 since it interfaces all of the VALDOCS video driver software, RSI Basic, and more, directly and specifically to the QX-10. TPM-III is a "no compromise" operating system intended for use with no other computer. As such it is very fast. TPM-III, like its predecessor TPM-II, is software compatible with all versions of CP/M through CP/M 2.2 programs at the system call level.

PEACHY SOFTWARE

When first introduced, Epson sold the Series 9000 software from Peachtree Software Inc., including PeachText (a word processor), Spelling Proofreader, PeachCalc (a spreadsheet), Mailing List Manager, Telecommunications, and the Calendar Management System. This minimal collection of software provided a small library of proven CP/M-based software to get CP/M users off the ground as quickly as possible.

Epson has continued to offer new versions of this software (the "5000" series), adding various other business packages also available through Peachtree. Most recently Epson has brought out the "Executive Tool Kit," a collection of customized software currently popular in several business areas. These have been customized to run with the HASCI keyboard and require the CP/M B release to operate.

The HASCI customization allows use of the various pre-labeled function keys (Store, for instance, causes a file to be stored.) and includes an interface to the internal ramdisk (drive M). This software, listed in table 2, is published in blue ring binders a little larger than the usual IBM-sized manuals. Except for the keyboard customization, the software packages are no different than the standard CP/M versions. The retail price for the HASCI customized software is about the same as for the equivalent CP/M version.

RUN ALMOST ANY CP/M

It is possible to buy nearly any CP/M-based application program configured for the QX-10.

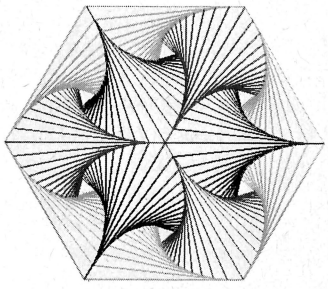
For example, Lifeboat Associates in New York City reports it has over 200 business and scientific programs available for the QX-10 computer. (It does not, as a rule, carry games programs.)

When buying 16-bit software configured for CP/M, be sure to check it carefully before buying. Some of these programs are so large, there is no room for data, making them impractical. One such program is Multiplan, which is so large only 12K of memory is left to hold the spreadsheet data. This is not enough room for even a small spreadsheet useful for most business applications.

WHAT YOU SEE IS WHAT YOU GET

VALDOCS (VALuable DOCumentS) is a software operating environment providing an elegant, but simple means of controlling a computer.

Tap the Graphics Power of Your QX-10 with RSIBASIC!



If you are writing Basic programs for your QX-10 with something other than *RSIBASIC*, boy are you missing out!

The Epson QX-10 is one of the most graphically sophisticated personal computers on the market, utilizing the powerful NEC 7220 graphics controller chip and 128K of dedicated video memory. ***RSIBASIC*** is the first (and *only!*) Basic to put that awesome graphics power at your fingertips!

And there's more! ***RSIBASIC's*** power is not confined to graphics capabilities. It is also one of the most *complete* Basics ever. It is *fast*, extremely *easy to use*, and it's *versatility* is unsurpassed.

Just Look at These Features:

- Supports over 170 keywords
- Supports random access and sequential files
- Supports DATE$ and TIME$ functions
- Turtle graphics commands including:
  - MOVE
  - MOVE TO
  - TURN
  - TURNTO
  - DRAW
  - DRAWTO
- Over 83,000 bytes free
- Supports three separate display screens with screen 3 being a "window" screen allowing it to be set for screen lengths between 0 and 16 lines and overlayed on either screen 1 or 2
- Supports sound as a background task
- Multi line user definable functions
- Supports X-Y graphics including:
  - lines
  - circles
  - arcs
  - rectangles
  - pattern-fill statements
- VPRINT allowing character strings to be displayed on the screen at various angles and sizes
- Fully supports color machines on color equipped Epson computers
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  - bold
  - italic
  - compressed
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ADDRESS _____

CITY _____ STATE _____ ZIP _____

MC/VISA # _____ EXP. DATE _____

SIGNATURE _____ DATE _____

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CIRCLE NO. 21 ON READER SERVICE CARD

VALDOCS has three planned levels of development. Version 1, distributed during the past year, demonstrated the overall design concept of integrated software and the HASCI keyboard. It was written in a collection of languages including STOIC, C, FORTH and assembly, and adapted, in some cases, from existing software. The 1.18 text editor, for example, started life as a version of the ZTEL editor.

The software provided in version 1 included one of the first successful "what-you-see-is-what-you-get" text editors; an electronic mail system; a graphics package allowing simple pie, bar, and other graphs to be drawn with data entered from the keyboard; a calendar-scheduler program; and a four-function calculator.

A collection of keyboard function keys allows various file functions to be activated, disks to be copied, and standard CP/M programs to be called up and run outside the VALDOCS environment.

Without going into very much detail, VALDOCS version 1 has bee sucessful. Reviews of VALDOCS, with one known exception, have praised the concept, but almost all mentioned that the system seemed slow. (One reviewer actually went on public record saying such a system would be ponderously slow and unusable until 16 or 32 bit computers were used.)

The VALDOCS version 1 editor is slow by many standards. A what-you-see-is-what-you-get editor is difficult to design and implement because the screen must be treated as a graphics tablet. Characters are actually plotted on the screen, a much slower process than normal display techniques.

When the screen display is scrolled up a line, the entire screen has to be replotted. This takes time, especially in an editor not intended to solve the myriad of other problems associated with this type of operation. Using the version 1 editor, it is possible to "out type" the screen, especially if special characters or underscore are applied.

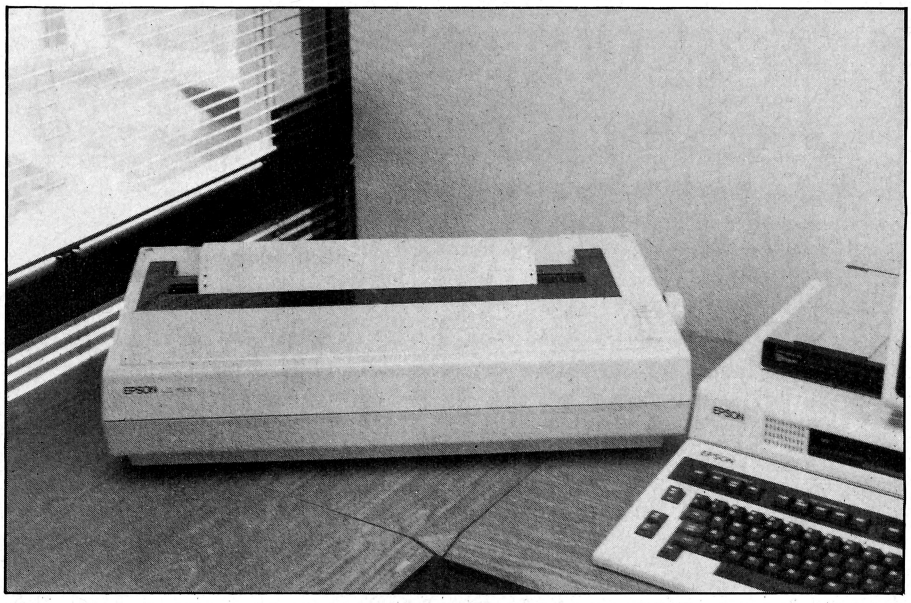

Photo by Jim Hansen

The much awaited Epson LQ-1500 printer. This high performance, 24 wire dot-matrix printer at last provides printer performance matched to that of the QX-10. Several print modes are available — fast, lower quality for draft copies, and slower speeds providing typewriter-like print.

Searches for text using the VALDOCS 1.18 editor can be excruciatingly slow. This is because only a small part of the actual text is kept in memory; most is kept in a temporary file on the data disk.

The speed of the rest of VALDOCS version 1 is fairly respectable, although it sometimes seems slower than other systems. For example, I timed how long it takes to store a document from the editor, call up an application program, then reverse the process, returning to the editor and calling up the same document to edit.

The results are interesting. It takes VALDOCS 1.18 20 seconds to accomplish these tasks, but, using WordStar and CP/M on the same QX-10, it took over 30. Somehow VALDOCS was about 30 percent *faster*, yet it *seemed* slower. Why?

It takes several computer interactions using WordStar and CP/M to accomplish the above task, but when VALDOCS is used, you merely poke the STORE button, hit a carriage return to save the document under its old name, poke the MENU key, find the application from the list on the screen, run the cursor to it and hit return. With CP/M, you must constantly stay attuned to what is happening, and interact with the computer each step of the way. This occupies you most of the time, making it seem quicker.

In the final analysis, VALDOCS 1, while slow in some respects, was (and is) quite usable by anyone who can read, type, and has an IQ over room temperature. And it comes free with the QX-10. VALDOCS 2.0, just coming on the market, is not just a warmed over edition of version 1.

VALDOCS'S SECOND COMING

Version 2 is fast. And it comes with a spreadsheet as easy to use as the editor; a vastly improved business draw package that automatically plots multiple data sets on bar, pie, line, and scientific graphs directly from the spreadsheet; an expanded mail program; and a collection of other very useful application programs.

VALDOCS 2.0 comes on two disks. The first, called the "load" disk, places support programs into memory that are always there to support the various other VALDOCS system programs. After this information has been read into memory, VALDOCS asks for the "run" disk. This disk is equivalent to the old "system" disk used in version 1. The entire two-disk loading process takes less time to bring up than version 1 did.

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CIRCLE NO. 22 ON READER SERVICE CARD

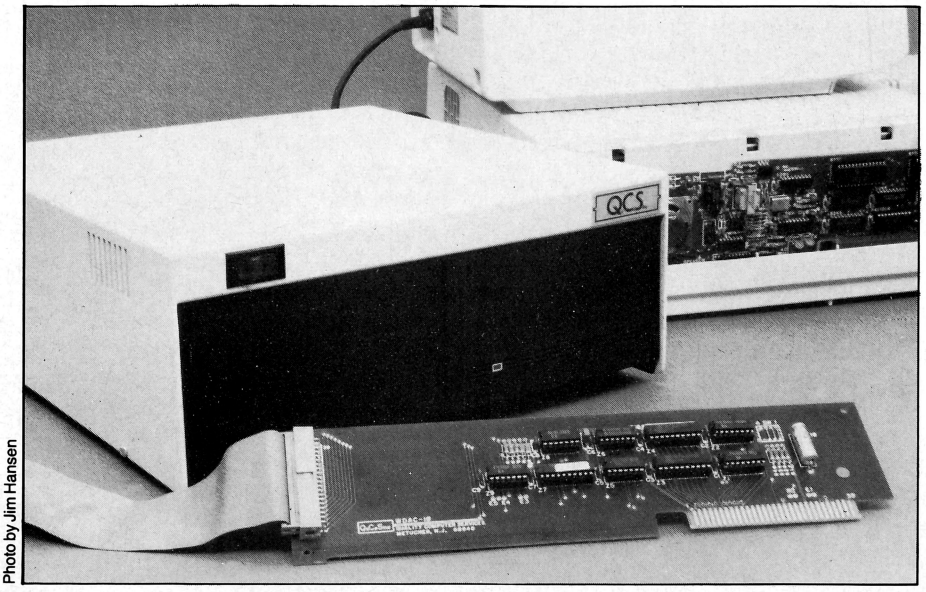

Photo by Jim Hansen

The QCS DSK-63 hard disk, showing the controller board. Installation of a hard disk is nothing more than plugging the controller board into a slot in the QX-10 expansion area. Formatting and installing software the first time is a somewhat trying experience using the QCS documentation. The Comrex installation manual is well done and easy to follow.

The VALDOCS 2.0 editor displays characters on the screen with little or no "rippling" apparent when a full screen scrolls up a line, all the while displaying 16 fonts including underscored, compressed, expanded, super, and subscripted characters. The typestyle keys are all functional in version 2. The style key selects normal, super, or supscripted characters. The size key changes the character sizes from the normal 10 characters to choices of 5, 10, 12, and 15 characters per inch. The cursor changes shape and size to indicate the size and style of the character set being selected.

The italic and bold keys select italic and bold versions of the characters being typed. Underscoring is done the same as on a typewriter: Backspace under the words to be underscored with the edit arrow keys, then type the underscore character. Simple and very slick.

Headers, footers, and many other features not included in the version 1 editor have been added, and more is on the way. It is claimed the version 2 editor keyboard can keep up with 450 word-a-minute typists. I don't know if this is true, since I can't type that fast. What I can tell you is there there are no more pauses necessary while the screen is repainted (that is handled in background, between keystrokes, if necessary.)

The version 2 editor also updates temporary disk files automatically, within three seconds after the last keystroke. This comes close to eliminating loss of data due to a power outages or accidental shutdown. If power is lost while editing something, then restored, the QX-10 will initialize to the editor with the cursor and text being processed displayed as they were at the time of the failure. It takes no more than about five seconds to store a file of any length. If a suitable hard disk is attached, version 2 files can be up to about 8 megabytes in length.

Many graphics features have been incorporated into the version 2 editor. The screen now has a ruler at the bottom with a separate cursor showing the exact character position being typed. This is an especially welcomed feature, since it is now possible to see exactly where margins, tabs, and the cursor are located.

Margins are now set by horizontally positioning a vertical bar running from the top to the bottom of the screen. The bar, representing the new margin position, clearly shows where the margin lines up in relation to both text on the screen and the ruler mentioned earlier. (You can still enter margins the old-fashioned way, by typing in the settings to be used in inches but that seems a little "klunky" compared to the graphic method.)

Page settings are done by adjusting the size of a box. The relative shape of the box can be seen against horizontal and vertical rulers, with (of course) a digital readout.

All aspects of editing have been *drastically* speeded up. It is unlikely speed will be mentioned again as a problem with VALDOCS.

The setup program in version 2 allows selection of the program to be run when the QX-10 is turned on. (Version 1 always initializes with the editor.)

This allows you, for example, to select MAIL at the end of the working day. If power should fail in the middle of the night, your QX-10 will start up in MAIL automatically when the lights come back on, ready to pick up anything coming in, or to send anything you may have scheduled for delivery that night.

A host of other system variables are selected here as well. This includes printer type, modem selection, any plotters or mice being used, whether menu windows scroll up and down or "pop" in, and more.

Other features make VALDOCS version 2 a genuine delight to use.

For example, the menus remember your last choices. When you have been through the menus in a particular application once, you can simply press the return key on successive passes through them unless a new choice must be made.

In MAIL, uncompleted calls cause a "redial last number" choice to be automatically added to the dial menu; COPYDISK allows you to browse through a directory selecting individual files to be copied, then automatically copies all your selections in a single pass, freeing you to do something else while the copy takes place; an automatic hard disk backup option is also provided.

Literally hundreds of other similar "nit-picking" refinements that no one will ever notice (until they are pointed out) have been put into VALDOCS version 2.

I have timed how long it takes to switch from one application to another using VALDOCS 2.0. The longest time I found was about 15 seconds, the shortest was around five. This was with a QX-10 and a QCS hard disk. (It takes a little longer using a floppy-based system.)

Here is an example: Select COPYDISK. After the COPYDISK menu is displayed, press MAIL. As soon as the MAIL menu shows up, press COPYDISK. Roundtrip time: about 14 seconds on a floppy-based system, 7 seconds flat with a QCS hard disk. (The floppy-based system times will be faster by the time you read this . . . my prototype software had not been "optimized" yet!)

PROGRAMS INSIDE VERSION 2

For those of you who have not seen the Epson keyboard before, all of the VALDOCS programs are called up by single function keys. The legend on the keys, naturally, describes the function to take place.

Probably one of the handiest of all of these keys is the undo key. It is used in the editor to erase the last change.

It's also used to change direction when making menu selections. You can go to a previous menu to change a selection, then "page" to your original position by hitting the return key.

In VALDOCS if you don't like something you see or just did, hit undo. If you want to stop something, press stop; if you can't figure something out, type help. There is over 50K of help-file data included on the version 2 disks. All of it has been carefully designed to be truly helpful and complete.

The other VALDOCS keys call up the functions listed below. These descriptions have to be brief, so only some of the more important updates and changes are noted.

HELP. There is now more help available, and it is faster than ever before. Nearly every menu screen — and there are hundreds of them — now have help installed. The only exceptions are those menus which are clearly self-explanatory.

COPYDISK now features both multiple and single-file copies. Files to be copied are chosen by use of the cursor and return keys; file names are no longer typed. An automatic hard disk backup, several other disk copy modes, and utilities are now provided.

STORE and **RETRIEVE** are incredibly fast, typically taking less than five seconds to complete. Speed is independent of the length of the file.

PRINT now runs fully in background as a spooler. It has improved page numbering, heading, and margin controls. It processes data, so it prints correctly for any of the Epson and Comrex printers sold in the United States. It also has provisions for "others" to be used as well. Options selected in "setup" cause plotter data to be automatically output when a plotter is in use for Valdraw or Draw. Otherwise, graphic data is formated for various Epson printers, selected from the printer list in the setup program.

INDEX can provide cross-referenced listings of VALDOCS files by each of the 16 words allowed for file names; the speed of the indexer is no longer a function of the number of active files. It runs at the same speed regardless of the number of files on a given disk.

MAIL. The electronic mail system now answers a ringing phone regardless of the current use of the QX-10. It also holds calls active while checking things outside of the MAIL program, allowing you to check files already on hand.

Multiple files can be sent and received in a single call and received files can be stored into either VALDOCS or TPM much more quickly than before, due to improved menus and disk access speeds.

Anything sent to the QX-10 screen during during a session with another computer or person can now be automatically saved in a disk "capture" file. This file can later be edited and printed as if it were an ordinary VALDOCS file. The mail address book, which holds names, addresses, and telephone numbers of people and computers you frequently call, is greatly speeded up, and access to any entry is nearly instantaneous.

Selections can be made in setup to change what is shown on the screen when mail is first entered. (You can have the in- or out-basket logs, names from the address book, or nothing shown on the screen.)

The cards in the address book are set up so each entry in the book can be a part of several different mailing lists. (When mailing labels are printed from the address book, you can specify which of several mailing lists are to be printed. Names in the address book can appear on all, some, or no mailing list.

MENU is the gateway key to VALDOCS and CP/M applications programs and the TPM III operating system. It has undergone a few menu changes, but is otherwise about the same as in Version 1.18.

CALC now enters Valcalc, the spreadsheet program. Valcalc supports an extremely large array (1 through 999 and A through ZZ). It offers most all the standard spreadsheet features, but with vastly simplified operation. (Most operations are similar to the VALDOCS editor.) Simple menu selections requiring perhaps five or six keystrokes, for example, are all that is required to widen a text column.

All the usual spreadsheet math and trigonometric functions are available; user-defined functions can be added and saved in a "library-like" system that operates under a menu. Up to eight sets of data generated by Valcalc can be taken directly to Draw for graphing. All the editor's "power failure" protection is provided in the spreadsheet; it remembers where you were when the lights go out, and returns you there when they come back on.

Numeric data to be placed in vertical columns can be entered "calculator" style, with values separated by the "+" and "-" keys. When the last number has been entered, the "=" sign causes the "formula" generated by the entry process to be automatically entered in the cell below the last number entered, and the summation value calculated and displayed. I found this to be a most convenient feature, and one wonders why it hasn't been used in other spreadsheets.

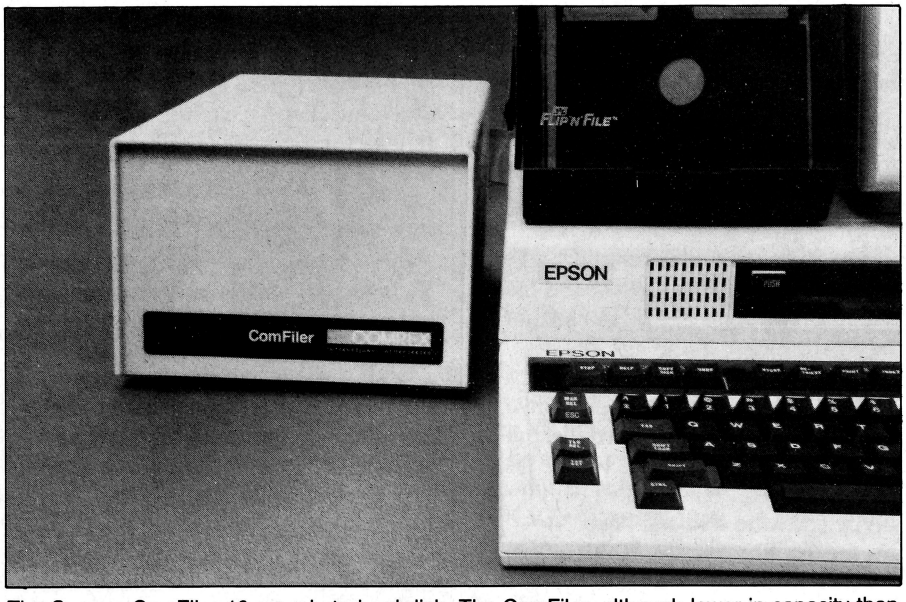

Photo by Jim Hansen

The Comrex ComFiler 10 megabyte hard disk. The ComFiler, although lower in capacity than most QCS hard disks, is slightly faster.

SCHED No major changes have been made to this program. Sched provides an "electronic" desk calendar with notepad.

DRAW now allows up to eight sets of data to be simultaneously drawn on pie, bar, line, and scientific charts. Draw automatically scales all data, and allows plenty of options for every type of chart.

For example, you can set the width and overlap of the bars in a bar chart. Automatic default values give very presentable charts, if you are too lazy to change them. Graphs can instantly be changed from one form to another — say from line to bar chart — by just changing the "graph type" entry in a menu.

The size and position on the screen of the chart can now be adjusted. (Version 2.1 is scheduled to allow automatic inclusion of these graphs in a text file. Once inserted in a file with the editor, it will be printed as a part of your report.)

The charts prepared with Draw can be "painted" with Valpaint to add shading, hand drawn sketches, and notes on top of the computer generated graphics.

MORE 2.0 APPLICATIONS

Several VALDOCS-related applications programs will become available with the initial VALDOCS 2.0 release. Some of these will be bundled with the version 2 release, others will be sold as separate programs.

MATRIX allows redesign of the graphics character set. These are the characters typed whenever the graph-shift key is depressed. The redesigned character sets can be made up of foreign characters, new graphic characters, or any symbol you wish to display on the screen or print using Epson printers. It is possible to have two complete character sets — the normal and a self-designed set — available under graph-shift usable at the same time. All such characters can be printed when using Epson dot-matrix printers.

DEFKEY allows the function keys (those above the main typing section, such as the store, retrieve, and print keys) to be defined as functions. These can be activated in both the VALDOCS and TPM environment. The functions can be built up to perform, automatically, several complex functions, such as calling up a utility program, entering control arguments, then exiting the program after it has performed its task.

SHOWPIC displays a list of picture files, much like a slide projector, on the QX-10 screen.

VALDRAW is a computer-assisted-design (CAD) package that can be used on any QX-10 computer. Although it is much more responsive when a mouse or graphic tablet is used (these generally plug into the serial port on back of the QX-10), Valdraw can be driven from the keyboard with the cursor control keys as well. This program offers a sophisticated set of drawing tools, including circles, arcs, lines, french curves, rectangles, zoom, block copy, and block insert. Valdraw includes automatic scaling and dimensioning. (The scaled distance between two points on a drawing is computed and displayed inside standard dimension lines and arrows.) Three dimensional projections and processing is not included with the initial release.

Libraries of shapes are being developed. These presently include architectural symbols (furniture, household appliances, doorways, and the like) as well as electrical, electronic and mechanical engineering symbols. Users can, of course, design their own libraries of often used shapes whenever desired.

Images produced by Valdraw can be plotted on Comrex and Epson plotters, printed graphically on Epson printers, converted for use with the rest of the VALDOCS system, or "painted" with Valpaint.

VALPAINT was first shown at the National Computer Conference in Las Vegas this year. Valpaint provides a complete "artist's toolkit" for drawing images on the QX-10 screen. Both color and monochrome (green and black) QX-10 systems can run Valpaint.

Like Valdraw, it can be used with cursor controls, but for anything practical, a good mouse is a must. (The Rising Star people have been using the PC Mouse from Mouse Systems Inc.)

Valpaint provides all the usual painting tools, including adjustable brush sizes and shapes, spray paint, area pattern fill, erasable borders and area copy.

Additionally, it offers a "recorder" which records the things you have done. These are duplicated when played back to another area of the painting.

Another impressive feature is image zoom. The image on the screen can be magnified up to 16 times. At this scale, individual pixels, by now about a half an inch square, can be colored to achieve dramatic and precise shading. Images produced by Valpaint can be printed on Epson printers, including the new JX-80 color printer.

CARDFILES is a miniature data-base management system. You can define the number of entries, names of fields, and so forth, and construct a catalog of cards with with any information you care to enter on them. It is very easy and convenient to use. A full-sized data-base manager will be available later as VALDOCS version 2.0 develops.

LABELS is a mailing-label manager allowing labels (or other information that can be formated on a line-to-line basis) to be entered, edited, and printed with VALDOCS. The intended application for this program is to manage and print mailing labels, but it can easily be put to other uses.

OTHER SOFTWARE PRODUCTS

Rising Star Industries offers a number of software packages for the QX-10 and VALDOCS. The TPM-II (and soon TPM-III) operating system is available with a disk containing a number of very useful utilities included with the "TPM User's Guide". The price of the TPM-II User's Guide is $21.

The Programmer's Guide to VALDOCS gives programming techniques to take full advantage of the video drivers, indexer, windowing, and other features and services offered to systems programmers by the VALDOCS operating environment. ($18)

RSIBASIC is one of the few Basic interpreters for 8-bit microcomputers offering over 83K of memory. This Basic provides over 180 statements and commands, and offers high resolution graphics, eight Turtle-graphics commands, 16 character fonts, full color capability, chaining, sequential and random access files, and more. The manual is over 390 pages long. ($99)

VALDOCS COMMENTARY

The success of the QX-10 is partially the result of VALDOCS version 1 achieving the goal of being usable by anyone. VALDOCS can almost be run on intuition alone. This is because all programs are driven by menus carefully worded to make sense to ordinary people (civilians, if you will), not just members of the computer priesthood. Exceptional care and a lot of experimentation has resulted in menu statements that mean the same to everyone, regardless of technical background.

Menu driven operating environments alone do not make integrated software, but the trend, startiingd first with the $20,000 Xerox Star computer, indicates how software will be patterned in the forseeable future.

One of the most obvious differences amoung the "integrated" software systems is how various menu items are selected and text is "pointed to." Apple's Lisa and MacIntosh use a mouse; Hewlett-Packard has you point a finger to the text on the screen. VALDOCS provides a formal editing cluster on the keyboard. Except for the actual pointing mechanism involved, all three approaches accomplish the same thing.

After a particular keyboard and system is learned you will eventually become very frustrated every time you have to take your hand off the keyboard during text entry to move a mouse around or put another fingerprint on your screen. It doesn't take a person very long to learn how to use a menu-driven system and to become a relatively fast typist; dragging a mouse around on your cluttered desk, or raising your forearm to eye level is not going to increase throughput for very long. I think the VALDOCS-HASCI keyboard approach is the correct one for text entry.

Graphics entry is best entered with a graphics tool. A mouse or graphics tablet are much better choices than cursor keys, but are an extra-cost item.

Of the mice available, the best (and most expensive, unfortunately) are optically-driven. These require a special ruled pad that is sensed by the mouse as it moves. Mechanical mice, such as those used on Apple products, have a ball that rolls on the tabletop. This typically slips, giving poor resolution, especially after it is dirty.

Graphics tablets are especially good for transfering data accurately into a computer system. Unlike mice, which only provide movement information, a graphic tablet gives an actual X-Y position for the stylus. Graphics tablets are a must when drawings have to be accurately copied into your computer.

VALDOCS version 2 software will be released to the public just before the end of the year. Right now it is in the final debugging stages, and very minor revisions are still being made. But VALDOCS 2.0 has been worth the wait. After following its development and the frustrations of all the those working on it at Rising Star, I am no longer a neutral observer. But I think that you will find VALDOCS 2.0 is everything version 1 demonstrated and promsied to be. ●

USER GROUPS ACROSS THE U.S.A.

Epson America, more so than most other manufacturers, has recognized the benefits user groups can provide a microcomputer and gives them VIP treatment. Epson's program has resulted, not only in the rapid growth of user groups, but increased grass-roots support and customer loyalty.

Sanctioned user groups (which must have more than 10 members) may are entitled to —

- Information from Epson's user group support department through an envoy acting as intermediary for that group;
- Technical support through a special contact at one of Epson's regional technical support locations;
- Beta test site eligibility for Epson software development;
- Instructions for accessing "EpSource", the Epson User Group Electronic Bulletin Board;
- Public domain software (including bulletin board software), is available either through EpSource or on disk; and
- Discounts on the purchase of Epson hardware.

User groups wanting to be sanctioned simply sign a form indicating they agree to terms outlined in the Epson user group charter (that is supposed to legally stop lawsuits before they get to Epson), and register their members by name, address, and QX-10 serial number. Epson will then offer to sell a single system (presumably for bulletin board use) at a substantial discount. (Contact Margaret Johns 213-539-9140 at Epson for further information.)

Below are listed the "official" Epson user groups in the United States. There are almost 130 additional "unofficial" groups (groups without official Epson sanction).

— Carl Cramer and Jim Hansen

ALABAMA

Epson Birmingham Users Group
3454 Birchtree Drive
Birmingham 35226
205-822-0161

ALASKA

QX-10 Users of Anchorage
6125 Eastwood Court
Anchorage 99504
907-337-2979
Newsletter: QX MENU

ARKANSAS

Little Rock Epson Users Group
101 South Shackleford Street
Little Rock 72211
501-227-8033

CALIFORNIA

Bay Area Epson Salts
125 Del Centro
Millbrae 94030
415-697-0567
Bulletin Board: 415-692-8374

Cursor Club
402 West Arrow Highway, Suite 6
San Dimas 91773
714-599-8361
Bulletin Board: 714-592-6316
Newsletter: CURSOR NEWS

Epson Users Group of Orange County
6075 Jeffrey Mark Street
Cypress 90630
213-414-4817
Newsletter: BYTE SIGNS

Epson Users of San Diego
PO Box 87448
San Diego 92138
619-560-7604

Epson Users of San Francisco
904 Irving Street, Suite 271
San Francisco 94122
415-661-9270
Newsletter: VALNEWS

High Desert Epson Users Group
933 Cottonwood Drive
Barstow 92311
619-256-3541

Napa Valley Epson Users Group
1307 Hestia Way
Napa 94558
707-253-8727

PSC/QX, Incorporated
2934 Wilshire Boulevard
Santa Monica 90403
213-453-4535
Bulletin Board: 213-474-4952
Newsletter: THE BARIAN REPORT

South Bay Epson Users Group
1115 Cerise Avenue
Torrance 90503
213-328-9916
Bulletin Board: 213-618-1940

COLORADO

Mile High Epson Users Group
449 West Colfax Avenue
Denver 80204
303-571-1891

FLORIDA

Epson Panhandle Users Group
276 Chestnut Street
Pensacola 32506

Miami Area Epson Users Group
117 NE 54th Street
Miami 33137
305-754-6460
Bulletin Board: 305-674-6135
Newsletter: THE SUBMIT FILE

ILLINOIS

Chicago Area Epson Users Group
18 West 100 22nd Street
Oakbrook Terrace 60181
312-495-9889
Newsletter: NO NAME

Epson Computing Group
300 East Main Street
Carbondale 62901
618-529-4050
Bulletin Board: 618-527-4050
Newsletter: QHX

McHenry Area Epson Users Group
2402 West Aspen Drive
McHenry 60050
815-385-2710
Newsletter: EPYGRAMS

INDIANA

Indy Epson Users Group
1324 Fairbanks Drive
Carmel 46032
317-846-5729
Bulletin Board: 317-881-3849

Three Rivers Epson User Group
PO Box 11823
Fort Wayne 46861
219-432-3500

IOWA

Epson Users of Siouxland
1115 Nebraska Street
Sioux City 51105
712-277-0058

KANSAS

Use-R-Log
PO Box 18130
Witchita 67218
316-682-4864
Bulletin Board:
316-264-4611 ("FOXY")

MARYLAND

Epson QX-10 Users of Laurel
334 Old Line Avenue
Laurel 20707
301-498-7906
Bulletin Board: 301-490-6863

Epson Users Group of
Southern Maryland
S.R.B. 222
Piney Point 20674
301-994-0770
Bulletin Board: 301-994-0770

Epsonnet International Users Group
PO Box 14027
Detroit 48214
313-822-0090
Bulletin Board: 313-823-1425
Newsletter: EPSON CONNECTION

Mid-Michigan QX-10 Users Group
1014 Montevideo Drive NE
Lansing 48917
517-321-6942

Southeast Michigan Epson Forum
PO Box 80702
St. Claire Shores 48080
313-822-5128
Bulletin Board: 313-823-1425

MINNESOTA

Epson Users Group of Minnesota
4126 29th Avenue South
Minneapolis 55406
612-722-2837
Newsletter: SYNERGY

Fargo-Moorhead Epson Users Group
PO Box 524
Moorhead 56560
218-494-3742

S.E.M.E.O.
520 Sunset Drive
Winona 55987
507-452-7695
Newsletter: S.E.M.E.O. NEWS

MISSOURI

Kansas City Epson Users Group
7120 Jefferson Street
Kansas City 64114
816-523-0627
Bulletin Board: 913-642-8479
Newsletter: EPNEWS

NEW HAMPSHIRE

The Epson Band & Bugle Club
PO Box 234
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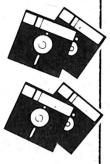

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Promodem 300/1200 Hayes Compatible	375.00
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CIRCLE NO. 18 ON READER SERVICE CARD

Special Free Offer

If you use CP/M programs on your Epson, SmartKey II can save you thousands of tedious keystrokes. SmartKey II is the software program that is taking the computing world by storm. Peter McWilliams, William Buckley, and others rave about how SmartKey II speeds up and improves accuracy in computing by eliminating boring and repetitious routines.

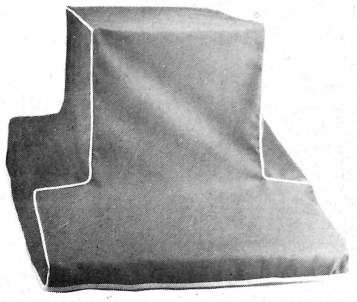
Smartkey II lets you easily reprogram as many upper and lower case keys on your keyboard as you want, even while your other software — such as Peachtext, WordStar, dBase II, etc., — is in operation.

Uses for this powerful, easy to operate program are endless. With SmartKey II you can assign up to 3,750 characters to a single key. Once you have redefined keys, you can put them to work or change them at will. You can also store your "smart key" definitions in a special file and use them later, or make numerous definition files to use with a variety of your favorite programs or projects. Imagine saving complex command codes, boilerplate paragraphs, sentences, proper nouns, inventory numbers, or whatever, and then injecting any of them into your work with the stroke of a single key. This is a must-have, time saving computer program for all QX-10 users. SmartKey II can even make your Epson's HASCI keys come alive and be productive in CP/M programs.

SmartKey II has a little known super companion program called SmartPrint II. SmartPrint II retails at $49.95. SmartPrint lets you give single-stroke commands to your dot matrix printer to make it produce italics, greek characters, graphic symbols, boldface, underlining, extended typefaces, accent marks, and much more. SmartKey II retails at $89.95. Now, for a limited time only, Central's price for a combination SmartKey II and SmartPrint II pack is only $89. In addition, as a bonus, with your purchase you will receive a free copy of Paul Golding's book, *Screen Smarts, The Computer Tamer's Guide*. This book is a $15.95 value. It tells how Mr. Golding, a professional writer, uses SmartKey II to turn his humble computer into a supercharged dedicated word processor. Please don't delay, this offer may not be repeated. Order today to get SmartKey II, SmartPrint II, and a free copy of *Screen Smarts, The Computer Tamer's Guide*, fast.

Introducing A Classic Form Fitting Epson Cover

Photo: Form-fitting cover over CPU, monitor, and keyboard.



At last, the classic Epson dust cover you'll be proud to own and use. This first rate computer cover is made from a premium, lint free, static free, washable, free breathing, and fade resistant sailcloth. It comes in a rich looking Navy blue or Sand. The Navy cover has a smart contrasting silver gray piping and trim that adds a superior finished look. Not to be outdone, the Sand cover is handsomely finished in a rich chocolate piping and trim.

This remarkable form-fitting dust cover makes you feel good and will keep your Epson dust free and looking brand new for years to come. For a limited time only, your price for this factory direct, custom made, sailcloth Quality Cover is $18.95. When ordering remember to indicate color preference. This special low price is subject to change. You must be completely satisfied with your purchase of this cover or we will refund your money immediately. Order today.

Matching sailcloth covers for all Epson and ComRiter printers: $15.95.
New. Special 2-piece QX-10 sailcloth cover protects monitor and CPU, and keyboard. $21.95 per set.

- Quality tailoring
- Easy care fabrics
- Attractive colors
- Professional appeal

Richly tailored inside and out. Look inside any of our Quality Covers; see the ultimate finishing; we use machines that sew with 3 needles so that edges will not unravel or shed lint. We stress perfection because you deserve the best. Compare for long-lasting satisfaction.

FACTORY DIRECT

Letter Quality

Say goodbye to correspondence qual
high-resolution, proportionally spa
Font provides fonts in sizes from
Roman, Bold, Italic, Script, Old En
low-cost Epson (MX, RX, FX) and
Font is an easy-to-use software pa
compatible systems; no special hardv

Actual sample produced by an MX-80 and Fancy Font.

Incredible Printing Machine

Your Epson printer is going to get even better. *Fancy Font* can make it into an incredible printing machine. The *Fancy Font System* is a software program that turns the bits and bytes generated by your computer into over 30 font sets in sizes from 8 to 40 points that can be printed on any Epson MX80 with Graftrax, Epson FX or RX printer, or Gemini 10X printer.

Fancy Font styles include Roman, Bold, Italic, Script, Old English, and more. In addition, custom forms, invoices, labels, signs, foreign languages, mathematical notations, view graphs, resumes, newsletters, brochures, complete manuals, invitations, place cards, and high-resolution, proportionally spaced, letter quality business and personal letters can all be printed on your Epson printer with *Fancy Font* at the helm. *Fancy Font* is a product of SoftCraft Inc. You may have seen SoftCraft's national ads. They are printed with *Fancy Font* on an Epson printer. The ad is powerful visual medicine. The list price for the fully documented *Fancy Font System 2.0* is $180. Central's price is only $149. Order *Fancy Font* today and add an amazing sparkle of creativity to all your printed materials. Please indicate name and model of your printer when ordering. *Fancy Font* will make your Epson printer and Valdocs or CP/M word processor come alive. It's magical.

The Epson can dump a file faster than a printer can accept it. So, it's great to have a device that will catch the file, quiet the disk drives, and give the computer back to you.

Stop Tearing Up Your Disk Drives

If you're using your Epson as a printer buffer instead of a computer, you may be tearing up your disk drives. Disk drives are mechanical devices, they are often the first parts of a computer to go sour. No wonder. Everytime you feed your printer a file, the drives whirl madly until the printer has accepted the entire file. Sometimes this takes a long, long time.

Photo: MicroSpooler 64 K P-P

If you're tired of hearing your disk drives grind down, you need a printer buffer. The best performance and price buffer on the market is the Consolink MicroSpooler. This computer-like tool absorbs files as fast as your computer can send them, and then patiently feeds or spools them to your printer a few bytes at a time.

The MicroSpooler is an intelligent, feature-packed buffer. It is easy to install and operate. Merely place it between your computer and printer, then connect it with two cables, and feed files as large as 64K within seconds to your letter quality or dot matrix printer. The instant the transfer is complete, you can operate your computer again. The MicroSpooler does the rest.

The MicroSpooler comes in a variety of configurations. You can link your Epson to any popular printer with two inexpensive cables. Please check our low MicroSpooler prices. You won't find a more feature-packed or reasonably priced spooler around. Try the MicroSpooler of your choice for 15 days. If you are not completely satisfied with your purchase, return it for an immediate full refund. Your Epson deserves this attractive and useful accessory. Order a compact and powerful MicroSpooler today.

CONSOLINK MICROSPOOLERS

Description	List	Price
64 K P-P	$315.00	$279.95
64 K P-S	$343.00	$299.95
64 K S-S	$349.00	$299.95
64 K S-P	$339.00	$299.95
Cables	$ 54.00	$ 29.00

64 K	Stores and spools files as large as 64 K.
P-P	Parallel Epson port to parallel printer port.
P-S	Parallel Epson port to serial printer port.
S-S	Serial Epson port to serial printer port.
S-P	Serial Epson port to parallel printer port.
Cables	Set includes one special male to female connector and one male to male connector. — Please tell us model and type of printer you're connecting to your computer.

Includes these unique features:

- Status digital readout
- Multiple copy function
- Temporary pause function
- Sleek internal power supply
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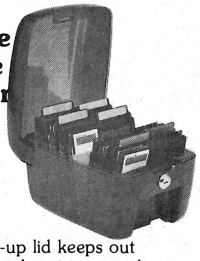
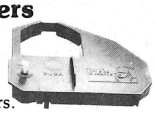
Lockable Diskette Defender



Handsome, sturdy, smoke-tinted acrylic tray holds 70 Epson-size diskettes. Flip-up lid keeps out dust, debris, and moisture, and locks securely to guard your important work. Comes with 7 dividers with index tabs for easy filing and to keep floppies upright to prevent bending, warping, and scratching. Tough and secure metal lock never comes in contact with diskettes because it is enclosed in a special plastic housing. Super value at $22.95 for one, or $21.00 each if you buy 2 or more. Keep prying eyes and sticky fingers away from your data. Order today.

LQ 1500 Users



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Epson and ComRex ribbons		Call

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'Someday I'm going to computerize my checkbook.'

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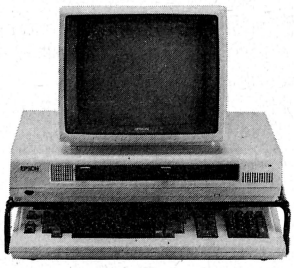
Quick Check tells you exactly where your hard-earned money goes. *Quick Check* lets you set up your own expense and income codes, or use built-in codes, so you can start entering checks and deposits immediately. You don't have to know about accounting to use *Quick Check*. This common sense program gives you instant fingertip access to a wide range of information about your income and expenses. Single keystroke commands help you pay bills, keep track of deductible and non-deductible items, correct mistakes, change dates, and reconcile your checkbook. This program even prints checks and addresses them automatically. *Quick Check* is written in CB80 native code. It is fast, accurate, and forgiving. No slowdown for sorting.

Home and small business accounting can't get any easier than this. Please don't spend another moment thinking about computerizing your checkbook. You can start getting that checkbook in shape now. The list price of *Quick Check* is $95. Central's current price is $79. Order today.

Attention: The rewards of using *Quick Check* include saving time, money, work, discomfort, and worry about your money. *Quick Check* is absolutely the easiest full-featured money manager, check printer, and budget organizer available. Bar none.

Perfect Epson Stand



Simple, strong, sturdy, safe. These words describe an attractive stand that provides a perfect spot to place your Epson computer and monitor on. This stand is made from rounded, steel rods covered with a thick, shiny, soft, black polymer material that protects your Epson and table top from scratches. Unlike flat wood or acrylic panels used in other stands, the tough supporting rods of the Smart Stand (TM) do not obstruct air flow. In fact, since your Epson is lifted off the table top and fully supported by this stand, air flows freely all around your computer to help keep it cool. When you're finished computing, you can slide the keyboard completely under the stand to create a working area on your desk. Incidentally, lifting your QX-10 off the table top makes it much easier to insert and remove diskettes out of the disk drives. The Epson Smart Stand is a super value at $34.95. Try it for 15 days. If not completely satisfied, send it back for a full refund. Matching 80 or 132 column printer stands are only $26.95. Order today.

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In 1983 and 1984 the folks at PeopleTalk Associates set out to find the best of the free public domain programs. They spent thousands of dollars and literally hundreds of hours contacting CP/M bulletin boards, downloading software, and then going through reams of computer programs. Their diligent sifting produced the 70 precious gems offered in Central's Super Public Domain Software Pak. D.Com, Unerase, Bio.Com, RPip.Com, Adventure.Com, Food.Com, ZCPR2, Chess, and dozens of other valuable programs can all be yours to use and enjoy.

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CATCH A RISING STAR

Editor's Note: This article is adapted from a series of articles that appeared in The Rising Star, *a customer newsletter published by Rising Star Industries. It appears in* Epson World *by permission from Rising Star.*

BY GORDON MUSTAIN

Exploring the question, "What is Rising Star industries?" is a bit of an adventure. Just when you think you've got a handle on it, you look at it from another angle and a whole new perspective appears.

From one viewpoint, it's a small, closely-held corporation founded in January of 1982 in Torrence, CA, by Chris Rutkowski, to design and develop software and hardware for the Epson QX-10 personal computer.

From another, it's a collection of off-beat, future-tech, creative crazies lead by someone self-described as "a little wild and wooly around the edges and not quite civilized," all "riding the curl of Alan Toffer's Third Wave on a silicon surfboard."

From still another viewpoint, it's a model for the new "Information Age" corporation. It's an electronic cottage industry, using the personal computer to do everything from eliminating the aggravation and wasted time of Southern California freeway traffic to allowing staff to live where they wish while tailoring work schedules to individual biological and metabolic clocks.

What's this? A game where everybody wins? Impossible, right? But then, according to Rising Star Industries' company motto, "Only the Impossible is Worth Doing." Therein, as someone once said, lies a tale.

EARTH'S KEY TECHNOLOGIES

To reach an understanding of this organization, it's necessary to know a bit about RSI's founder, Chris Rutkowski. The two most important things to know about him are:

1) He firmly believes with Buckminster Fuller that "the only thing required to be brillantly negative is a mouth;" and

2) It *really* is possible to make the world a better, more comfortable place to live.

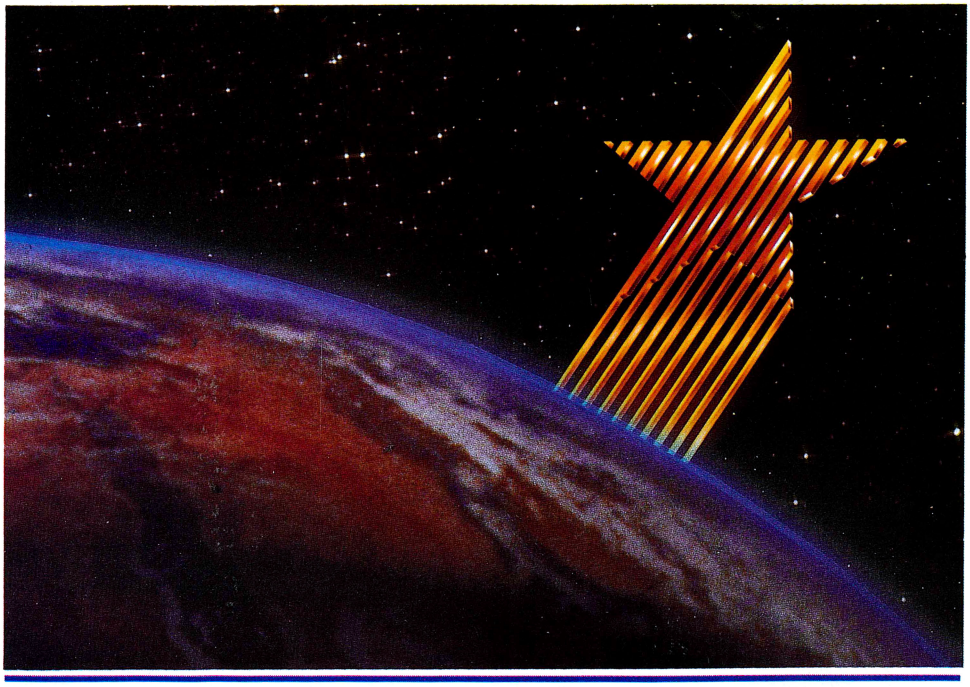
As he puts it, "I have this silly concept that I can change the world . . . Since I was a kid, I've had this feeling: 'If we don't like the world the way it is, why don't we just change it?'

". . . Relatively speaking, the problem we are facing is a fairly simple one. There are a number of key technologies missing on this planet, technologies that mankind really needs in order to hit [its] stride. I've isolated what those technologies are through the study and development of a subject I call *Architectural Stabilization*, which involves an entire theory of systems evolution.

"That theory not only isolates the needed technologies which we don't currently have, but helps to put them within reach.

"Don't get me wrong, I'm not talking about Utopia. Every attempt to create Utopia has failed. I just want to make the world a little safer than it is today, just make it a place where Man is able to create and where his primary reward and goal schemes are based on creation rather than destruction."

TECHNICAL DESIGN LABS



So what does all this have to do with developing software for the Epson QX-10? Quite a bit, actually. It goes back to some fundamental observations Chris made and to some understandings he reached, during the first years of his involvement with microcomputers.

To set the stage, the microcomputer industry actually began in January 1975, when the Altair computer was introduced to the "home-hacker" market. Chris had just returned from an extended stay in Europe and was, in his words, "looking for the next technology to get involved in, the next major technical product which would have a positive effect on society." Thus, when he ran into an old friend who introduced him to the embryonic technology of the microcomputer, he was ready.

By mid-1975 Chris was studying micros from a marketing standpoint and in terms of Architectural Stabilization. Since Architectural Stabilization involves the study and prediction of the evolutionary stages something goes through before it's accepted and used on a mass scale, he was already thinking about the stages ahead for the personal computer.

In January 1976, he joined forces with Roger Amidon (currently the head of the systems group for RSI), and Carl Galletti (former owner of Computer Design Labs). They formed a company called Technical Design Labs.

In August that year, at the first computer trade show ever — the Atlantic City Computer Festival — they started selling their first product: the ZPU, the first Z80-based product for personal computers to hit the market. The idea had been Carl's, Roger had done the design, and Chris arranged the financing, set up the introduction at the show, and designed and wrote the manuals and ads. In the next 24 months, they sold 7000 boards.

During the two years of its existence, Technical Design Labs came out with a number of "firsts:" first Basic, first macro assembler, first editor, and first text processor to do word processing. In two years they grossed over $3 million in sales.

INTEGRATED DREAM

Even in those early days, however, Chris was thinking of the personal computer as a tool of immense cultural and social value. He found once past the apparent complexities, computers were actually quite simple.

"The problem," in his words, "was to strip away those complexities so that Mr. Average wouldn't have to fight with them."

In 1977 he put those ideas down on paper for the first time, doing the basic design work on a product line for TDL consisting of a desktop microcomputer, a keyboard, two disk drives, a CRT, and an integrated software package which would handle the needs of the average person. Beginning to sound familiar?

Keep in mind that in those days there was nothing like it on the market.

By 1978 they had a working prototype, a name (The General), a workable retail price ($4000), 60-plus dealers signed up, and $35 million in orders. What they didn't have and couldn't get was the venture capital to start production. The General never went to market.

As Chris puts it, "I saw, as early as '76, that mass production capabilities were going to be the key to the success of the personal computer. It's the only way to get it out inexpensively and in volume.

"Unfortunately, in '78 there was no widely recognized market yet. Apple was just starting to grow with a major infusion of venture capital, but there was not much of it around at that point.

ALWAYS ON LEADING EDGE

"It's just one of those things. It seems like I've always been on the leading edge of things. My ideas today are not better than they were then.

"But today I've got seven years of experience and a couple of failures under my belt. And with Epson, I've got the backup I've never had.

"It's a perfect combination: the Japanese mass-production capabilities (probably the best available anywhere on earth today), and good old Yankee ingenuity.

In mid-1978 TDL was bought by some consultants who tried to arrange financing, but failed.

In May 1979, broke and deeply in debt from TDL bills (he had refused bankruptcy as immoral and eventually repaid all his debts), Chris packed up his family and moved to Monterey, CA, where he went to work for Omnigistics, a direct-mail marketing company in nearby Salinas.

On his own time he continued to work on his theories of system evolution and Architectural Stabilization, and he began to realize they applied not to just technological products like the automobile or computers, but virtually all human systems. Using the theory as a predictive tool, It seems like I've always been on the leading edge of things. My ideas today are not better than they were then. Using the theory as a predictive tool, he began to see which products and techologies were going to have to evolve in order for mankind to achieve anything like a stabilized social system.

HASCI DEVELOPED

One of those products was the personal computer. Pulling out his notes on The General, he began refining them, looking for the ideal configuration of form and function (the architecturally stabilized design) that would allow mass acceptance and utilization of microcomputers.

The concept of HASCI (Human Applications Standard Computer Interface) was born. It was still to be a while, however, before the concept would become a reality.

> "I just want to make the world . . . a place where Man is able to create and where . . . schemes are based on creation rather than destruction."

In October 1979, Chris left his marketing post with Omnigistics to dedicate himself to the research of his theories. "We were penniless," he recalls, "and my decision to go it alone provoked considerable hardship on my family. But I believed, as Bucky Fuller had said, that if one were aligned with the force of Universal Evolution, the wealth of the universe would provide one's support."

Not quite a month later, through a friend, Chris met Yashuhiro Tsubota, the president of Epson America. It turned out to be a meeting of considerable significance.

When Chris and Tsubota met, Shinsu Seiki — part of the Seiko group of companies — was already established as

the world's largest manufacturer of precision electronic printers, turning out 70 percent of the world's calculator printers (700,000 to 1 million units per month). The company was then almost exclusively an Original Equipment Manufacturer (OEM), producing the components that other companies turned into consumer products.

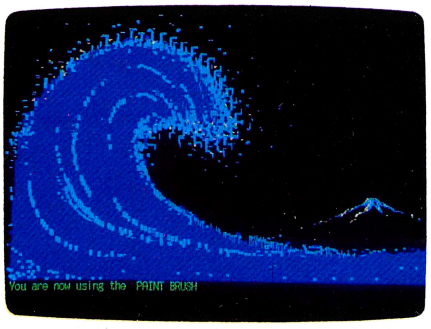
WILD AND WOOLY EDGES

Shinsu Seiki's subsidiary, Epson America, had introduced its first consumer product into America the previous year, the TX-80 dot-matrix printer. They had, however, sold only a few units.

Epson wanted to develop a nationwide dealer network for an advanced version dot-matrix printer (which would eventually become the MX-80), and Tsubota was looking for an innovative American for the job.

According to Rutkowski, "I was a little wild and wooly around the edges, and not quite civilized, and a little bit crazy. When I said 'I'll make you number one,' Mr. Tsubota laughed. But he hired me."

Chris came on board as manager of market research and development.



Twelve months later, he became national sales and marketing manager. In the interim he had been busy.

Epson had the key ingredients for storming the microcomputer market as he had envisioned in 1975. Epson's high engineering standards, virtually unlimited working capital, and mass production capabilities were an unbeatable combination. The task he set for himself was to discover the best way to make use of these resources in order to make the MX-80 the number one selling printer in the United States.

ATTACK ON MARKET PLANNED

He began by conducting a survey of the marketplace. This survey indicated the public's number one concern was reliability, a major asset Epson already had in its quest for dominance.

Epson, as a supplier to manufacturers around the world, had learned to contend with long shipping distances and very high volume production, both requiring exceptionally good quality control. As Chris explains it:

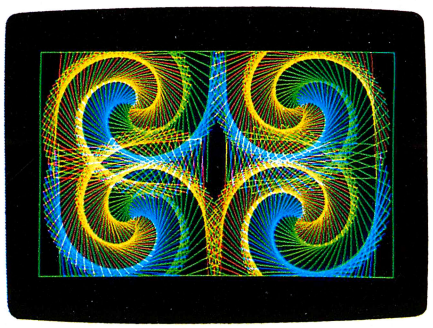
"When you're making a million pieces of anything a month, anything more than a .1 percent failure rate would require enough repair technicians to short circuit both output and income."

Second in importance was print quality. High quality text was attainable in the marketplace, but only with slow and expensive daisywheel printers. Inexpensive dot-matrix printers such as the MX-80 still lacked sufficient quality, even though users surveyed did not insist on the ultimate precision of a Selectric-typeface.

Oddly enough, despite what a lot of people were claiming, print speed was not essential — it wasn't even in the top five on the list of priorities.

CORRESPONDENCE QUALITY

In trying to find a way to meet this demand for print quality, Chris discovered a unique feature of the printer Epson had not capitalized on. Epson's designers had met specifications for double-strike printing (which fills in each letter with extra dots) in order to bold face a word or phrase in a sentence. What had not been seen, however, was using this double-strike mode over an entire page or document provided an enhanced print quality (at a minimum



cost of printing speed) which would more than satisfy most print quality demands. Chris coined the phrase "Correspondence Quality Printing" to describe the feature.

The ideal printer would also have to have graphics capabilities, the third most important feature according to the surveys. Graphics flexibility, including the ability to print a variety of fonts, was what Chris wanted. However, making this happen was not quite as easy as solving the image quality problem. It required new software inside the printer.

Having determined what it would take, Chris contracted with Richard Mossip to produce the new internal software package to multiply the features of the printer. It provided superb graphics and italics, and the result — Graftrax — was added to the MX-80 in mid-1981. The Japanese later expanded the software, now known as Graftrax-Plus.

> "[I]n an ideal product line . . . certain fundamental functions . . . should be consistent throughout. . . . if you put a Rolls Royce and a Subaru side-by-side. . . . [f]unctionally . . . they are identical. What varies between them is price and quality."

Armed with an excellent and exciting product and backed by a company able to produce reliable products in volume, Chris put together an effective sales network. He hired the sales staff and trained them to meet the customers' needs.

TAKING CARE OF BUSINESS

The surveys, however, had pointed to another very interesting fact. Many dealers were dismayed and put off by the lengthy contracts necessary to do business with many printer manufacturers. These contracts often required complex calculations for unit pricing at various purchase quantities and burdened dealers with excessive minimum purchase amounts.

Chris decided the fastest way to capitalize on his superior product would be to make it very easy to do business with Epson. At his suggestion Epson simplified purchasing procedures as well as reducing the dealer agreement to a bare minimum of legal language.

This still wasn't enough, however. The dealers had to learn about the new program and be convinced to sign on. To accomplish this, Chris conceived an advertising and direct mail campaign, writing most of the ad copy during the first year of production. His "Business Simplified" brochure, part of the introductory dealership campaign, won the 1980 Western States Advertising Association Award.

The combination of his marketing campaign and well-trained staff produced remarkable results. The MX-80 printer was formally introduced September 1, 1980. By the end of November, less than 90 days after its introduction and before the printer had really even begun to attract notice, Chris's crew had signed up Epson's 1000th dealer. The sales boom was starting.

CUSTOMER SUPPORT

But this was only the beginning. It has always been a belief of Chris that what happens after the customer carries the product out of the store is as much a part of marketing as the advertising attracting the customer.

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C. **Which Epson computer do you own?** 1. ☐ QX-10 2. ☐ QC-10 3. ☐ HX-20 4. ☐ Geneva

D. **Which Epson computer do you intend to purchase?** 1. ☐ QX-10 2. ☐ QC-10 3. ☐ HX-20 4. ☐ Geneva

E. **Do you own an Epson printer?** 1. ☐ Yes 2. ☐ No

F. **If you answered "No" to Question E, do you intend to purchase an Epson printer within the next 6 months?** 1. ☐ Yes 2. ☐ No

G. **Do you use your Epson computer for** 1. ☐ professional or 2. ☐ personal computing?

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81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

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"I came up with this concept to form a sort of artists' stable in which some of the brightest, craziest, most creative minds we could come up with could be brought together to work on . . . VALDOCS."

Then, in the spring of 1981, Epson-Japan management made a decision. Due, in large part, to the success of the

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"It's like, if you put a Rolls Royce and a Subaru side-by-side, it's easy to see that they both have four wheels, and steering wheels, and windows that go up and down. They both carry people and can be used to get people from point A to point B. Functionally, which is to say architecturally, they are identical. What varies between them is price and quality."

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"When we got back from Japan," Chris says, "I knew two things. One,

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Earlier, pursuing his belief the user should get a useful tool that was easy to learn, Chris had hired David Lien to write the owner's manual for the MX-80. Lien had written the TRS-80 manual, one of the first computer manuals a lay person could actually use. Lien's manual was a radical and welcome departure from the usual technical jargon and complex schematics characterizing most printer owner's manuals.

Chris also made certain there was an after-sales service function set up and operating to support the product. Word of mouth advertising quickly became an important force working in Epson's favor.

Having combined the product attributes of low cost, high quality print, and reliability, with an innovative and hard-hitting marketing campaign, Chris watched the Epson MX-80 quickly become the dominant dot-matrix printer in America.

LEADERS CAUGHT NAPPING

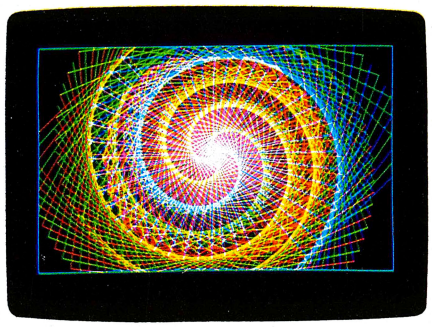
When it was first introduced, in September of 1980, Centronics was the industry giant with a 50 percent market share, followed by Integral Data Systems, Texas Instruments, and Anadex. The swift development of Epson's dealer network and the "blitzkrieg" marketing program caught the leaders sleeping.

At the time Chris kept cabling Japan, saying "Make more printers! Make more printers!" By April of 1981, Epson was selling tens of thousands of printers a month, limited only by production schedules.

By the end of 1981, Epson was widely acknowledged as the industry leader. Chris had made Epson Number One, and Tsubota was still laughing, but not for the original reason.

"We were successful," Chris says, "because we combined good old fashioned Yankee ingenuity with the best engineering and manufacturing on earth. Bringing those two things together made an unbeatable combination.

"I believe this about the world, as well



— taking Japanese and American concepts and combining them will probably make a much stronger society than anything we have today."

By mid-1981, riding the crest of their success with the MX-80, Epson management made a decision; they would enter the microcomputer marketplace. When they told Chris and asked him what he thought their products should be like, it was Chris's turn to smile. He'd been ready for that question since mid-1975.

CHRIS'S WISH COMES TRUE

"Not now."

That's how Tsubota responded throughout 1980 and early 1981 whenever Chris brought up the idea of Epson building a microcomputer for the American market.

As Chris tells it, "It was always the same response. Never,'no' — just 'not now.' So I never gave up. I kept asking."

> "I came up with this concept to form a sort of artists' stable in which some of the brightest, craziest, most creative minds we could come up with could be brought together to work on . . . VALDOCS."

Then, in the spring of 1981, Epson-Japan management made a decision. Due, in large part, to the success of the Epson MX-80 printer in the United States, Epson America was no longer going to be an OEM company. It was now a consumer products company.

"I remember the day the message arrived," Chris says. "Basically they were asking, 'What kind of consumer products do you want to sell? If we can build them, we will.' When Tsubota told us about it, I figured it was time to get busy."

Much of the preliminary design work on what he wanted in a microcomputer was already done, but Chris knew that would not be enough. He began work on a report that included, in addition to those designs, product illustrations, a complete accounting of marketing considerations, and the design philosophy for the product line. When it was finished, the report was 150 pages long.

With Tsubota's approval, the report was translated into Japanese and submitted to Epson Japan for consideration.

ROLLS VS SUBARU

In June of 1981, Nakamura of Japan and Tsubota asked Chris to go to a group of Japanese engineers and managers. He didn't require a lot of persuading. He and Steve Semos, who is still with Epson America's Marketing department, made the trip.

"What I tried to stress in the presentation," Chris recalls, "is that in an ideal product line, what should vary from product to product are price and quality. There are certain fundamental functions, however, which should be consistent throughout.

"It's like, if you put a Rolls Royce and a Subaru side-by-side, it's easy to see that they both have four wheels, and steering wheels, and windows that go up and down. They both carry people and can be used to get people from point A to point B. Functionally, which is to say architecturally, they are identical. What varies between them is price and quality."

From the beginning Chris was going after an architecturally stable design for the microcomputer.

"When we got back from Japan," Chris says, "I knew two things. One,

we were going to get a computer to sell. And two, we — in America — were going to have to develop the software for it. It was while wrestling with the problem of how to get that software done that I hit on the idea which eventually became Rising Star Industries.

ENLISTING THE CRAZIES

"I'd been around the industry since '75 and I knew all these really bright, crazy people — people like Richard Mossip, who had done the original Graftrax software for the MX-80, and like Roger Amidon, who I had worked with on The General back in my Technical Design Lab days. But they were not people you could make into 'employees.' If you put them in a suit and made them punch a time clock every day, you would lose that creative sparkle, that freewheeling genuis which made them the people who create breakthroughs in the industry.

"Traditionally, these are the kind of people who form the backbone of American entrepreneurship. They come up with an incredibly valuable product and then a cadre of businessmen form around them to manufacture and market that product, and they get a piece of the action and the freedom to go on working on new problems and products.

"So I came up with this concept to form a sort of artists' stable in which some of the brightest, craziest, most creative minds we could come up with could be brought together to work on this goal I had laid out, this integrated software system called VALDOCS. It could be set up so they could work their own hours, in their own homes, on the parts of the project which most interested them, and they could share financially in the product.

"The idea was to form an amplifier circuit — a knowledge amplifier. We would develop the best, most creative software possible and sell it to Epson, who would in turn sell it to the public, feeding royalties back to us to finance more research and development. It was a feedback circuit, combining the best creative talent in America with the best of Japanese manufacturing and marketing."

A HOTEL ROOM IN PRINCETON

In September of 1981, Chris presented a written proposal for the establishment of Rising Star to Tsubota. It was approved, and Chris began work on the details.

Meanwhile, development work was continuing on the QX-10. Chris contacted Roger Amidon and Richard Mossip and laid out the situation. They agreed to work with him on the development of the software.

In early November, in a hotel room in Princeton, NJ, Chris, Roger, Richard, and Steve Semos met with three Japanese engineers to talk about the QX-10.

"Roger had come to work for Epson," Chris explains, "so he could work full time on the project, with the full knowledge and agreement that when Rising Star was set up and functional, he would leave Epson and become a part of Rising Star. So he, I, and Steve were there as Epson America employees, and Richard Mossip was there as a consultant to Epson.

"The Japanese brought their hardware design drawings and circuit board specifications and we brought the preliminary design for the HASCI keyboard and some preliminary concepts for the VALDOCS software which had, of course, evolved out of the HASCI design. It was an incredibly productive meeting.

"The hardware specs were fine-tuned to the requirements of the software, the HASCI design was finalized, and we came away knowing what the QX-10 was going to be. It was and is a truly outstanding design. I can honestly say, I know of no better hardware on the market. We knew then that it would take years to develop software to fully take advantage of all the design features."

> "I knew all these really bright, crazy people. . . . But they were not people you could make into 'employees.' If you . . . made them punch a time clock every day, you would lose . . . that freewheeling genuis which made them the people who create breakthroughs in the industry."

BIRTH OF A NAME

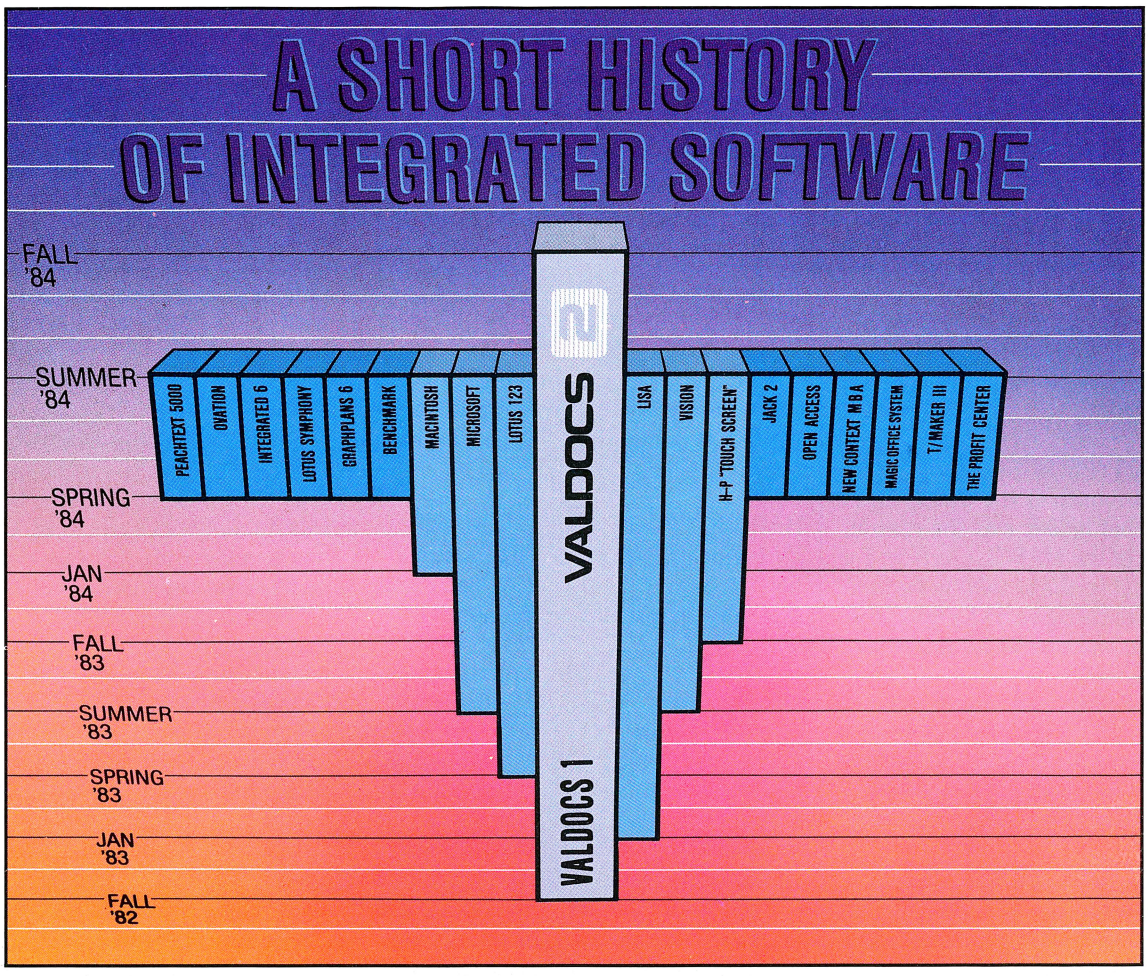
Chris had known the hardware and the software would have to be developed simultaneously, and he left the meeting assured it could be done. Roger, with nothing more than the hardware specs and drawings, began writing the needed system level support code, and Richard Mossip, in his continuing role as a consultant, started developing the first pieces of VALDOCS, utilizing Chris' design concepts.

Development work continued through December, and in the meantime Chris hired Gale Carr, a woman whose work he had known for many years. He knew she was the kind of totally competent and trustworthy person he would need to handle the administrative side of the company while he handled the technical side.

It was near Thanksgiving of 1981, while Chris was working on the legal structure necessary to set up his company, that he hit upon the name. He had come up with and discarded several possibilities because they were too far removed from what he was trying to accomplish with the company. As is his habit when a problem won't resolve, he went back to the fundamentals.

"I asked myself, 'What is it that I'm trying to do?', and I found myself thinking again about the knowledge amplifier concept, the combination of the best American ingenuity with the best manufacturing and marketing on earth. America and Japan. The Rising Sun and The Stars and Stripes. And bang, there it was. Just that simple. Rising Star."

On the 15th of January 1982 the corporation was officially formed. That day



Chris resigned his post at Epson and became president of this newly formed company which consisted of himself, Roger Amidon, and Gale Carr.

TACKLING THE IMPOSSIBLE

"We knew we had a big job ahead," Chris remembers. "After everything was signed, we just sat there for a moment, the three of us, looking at the future. Then we shook hands and said: 'It's up to us to do it.' "

Now, Chris was faced with the task of translating his concepts for VALDOCS into reality. He knew the task would not be easy. Conventional wisdom at the time held that easy-to-use, truly integrated software was an impossibility on any microcomputer, and especially so on a Z80-based machine.

"Of course there was absolutely no empirical evidence to support this contention," Chris recalls, "because at the time nobody had ever attempted to write truly easy-to-use integrated software. Nonetheless, that was the prevailing view at the time. The Rising Star motto, 'only the impossible is worth doing,' came into existence very early on."

One of the key concepts in the early development of HASCIVALDOCS was the choice of processors didn't really matter. The Z80 was chosen primarily because none of the other processors available had the stable, mature tools necessary for development work.

"Comparing the relative merits of various processor chips is like comparing the merits of four, six, and eight cylinder engines," Chris contends. "There are four cylinder engines which are refined to the point of being faster and more powerful than eight cyclinder engines. We felt that no one had ever really exploited the full potentials in the Z80. In fact, VALDOCS 2 will be the first software to ever come close."

SIMPLIFY AND AMPLIFY

With Roger busy developing the basics of the operating system code (working off nothing more than spec sheets and design drawings from Japan), and with Gale busy setting up the administrative side of the company, Chris retired to a cabin in the woods near Carmel, CA, and spent a month with Richard Mossip hacking out a first level of the VALDOCS software design.

"Right from the beginning," Chris says, "the guiding design principles were to *simplify* and *amplify*. I had had a chance to study the principles using the Xerox Star, the precursor of Apple's Lisa, and I found the concepts interesting but still far too complex.

"The desktop metaphor of multiple documents on the screen at the same time, while it might have a place in VALDOCS' future, was far too complex to be a fundamental requirement.

"And the use of icons, if carried to its logical conclusion, ends up at the 16,000 character kanji set which is the written Japanese language. Even Apple only uses icons on the first level of choices. Beyond that, the complexity introduced by the ambiguity inherent in icons, forces them to use word labels."

THE PROTOTYPE ARRIVES

Early in that month at the cabin, Chris arrived at what he felt was the central, key concept of the HASCI interface: *The end user should be able to point to the function he or she wants the computer to perform, push a button, and have the computer perform that function.*

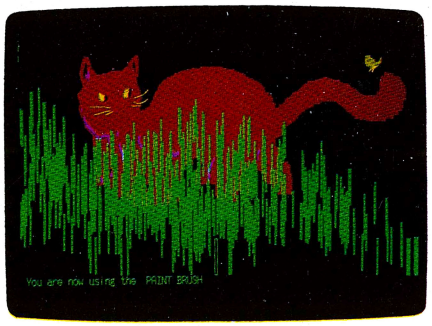
"I emerged from that month with reams of notes, and sketches of interface designs which turned out to be pretty close to the final design," Chris remembers. "Now those notes had to be fleshed out."

He spent March and April on two tasks: looking for the special people he knew he would need to get the software done, and fleshing out the notes for VALDOCS.

Out of this work, Chris distilled two articles on the HASCIVALDOCS concepts later published in the October and November issues of *Byte* magazine.

Roger, meanwhile, had been making considerable progress on the systems level software, still without having seen any actual hardware. In early May the first hardware "prototype" arrived, a wire wrapped board in a metal box, and Roger could finally start testing his code.

"The first actual QX-10 didn't arrive in this country until June, four days before the National Computer Conference," Chris remembers. "Our development efforts had been so tight with the Japanese, that in four days Roger was able to get the operating system up and running, and Richard Mossip had the first cut at the interface working with a little editor and a couple of other things in it.



"We had a private showing for the editors of major computer press magazines during the show, and that's where the press reports started."

HARSHEST CRITICS SILENCED

By fall of 1982, Rising Star Industries had grown to 15 employees. Fall Comdex that year marked the first public showing of VALDOCS software.

"We had managed to get an early version together for the show which sort of worked," Chris recalls. "There was a scheduler, and indexer, a crude editor, and rudimentary mail program. But it was enough. After the show we got the go ahead from Mr. Tsubota and Epson to start development on Version 2."

Even before VALDOCS Version 1 had been finished and introduced into the marketplace, Chris began design work on VALDOCS 2.

He notes, "The point of Version 1 of VALDOCS was to prove it could be done; to prove that, in spite of conventional wisdom to the contrary, it was possible to write integrated and easy to use software."

That proof came rapidly after the introduction of the QX-10 and VALDOCS into the marketplace in March of 1983.

> "It seems like I've always been on the leading edge of things. My ideas today are not better than they were then."

"Even our harshest critics — and there were a few things about 1.14 which merited criticism — but even our harshest critics admitted that VALDOCS was incredibly easy to use, and that it was truly integrated software," Chis says.

Further proof appeared over the next months as integrated software became a buzz word in the marketplace with more and more products showing up with some degree of integration between modules.

THE BEST YET TO COME

"In a little over 14 months," Chris says, "we had accomplished the impossible. That there were bugs in the first release was not only not surprising, but to anyone familiar with software development, it was inevitable.

"Within three months, by June, we had released VALDOCS Version 1.16, which handled many of those bugs. And by September we had released 1.18 which not only handled most of the remaining bugs but enhanced the overall program with the addition of numerous new features.

"I am very, very proud of the development work done by, and the accomplishments of, the Rising Star team. I honestly know of no other group anywhere who could have pulled it off.

"Now we have VALDOCS 2. . . . What VALDOCS 2 actually does is establish the minimum acceptability level for personal computer software at any price. . . . VALDOCS Version 2 will become the minimum standard which people will demand and expect in the computer as mind amplifier. . . ."

"Meanwhile, we will continue to refine and add features to VALDOCS, and to work on Version 3. Version 3 will incorporate some of the theory of HASCI which has never been published. It dates back to a formal document I wrote in 1980 defining a particular capability which will be necessary for the personal computer to attain anything close to its full potential, a capability which does not exist today on any system.

"When Version 3 is done, my original design goal for VALDOCS will have been achieved: VALDOCS will be the only software 90 percent of personal computer users will ever need."

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